# Corridor Evaluation, Recommendations, and Project Strategy

### **FINAL REPORT**

South Halsted Bus Corridor Enhancement Project

November 2019

**Prepared for:** 









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### **List of Acronyms**

AADT Annual Average Daily Traffic

ADA Americans with Disabilities Act

CAG Corridor Advisory Group

CDOT Chicago Department of Transportation

CE Categorical Exclusion

CMAQ Congestion Mitigation and Air Quality

CTA Chicago Transit Authority

FTA Federal Transit Administration

GIS Geographic Information System

IDOT Illinois Department of Transportation

NEPA National Environmental Policy Act

ROW Right of Way

STP Surface Transportation Program

TSP Transit Signal Priority



## 1. Project Overview

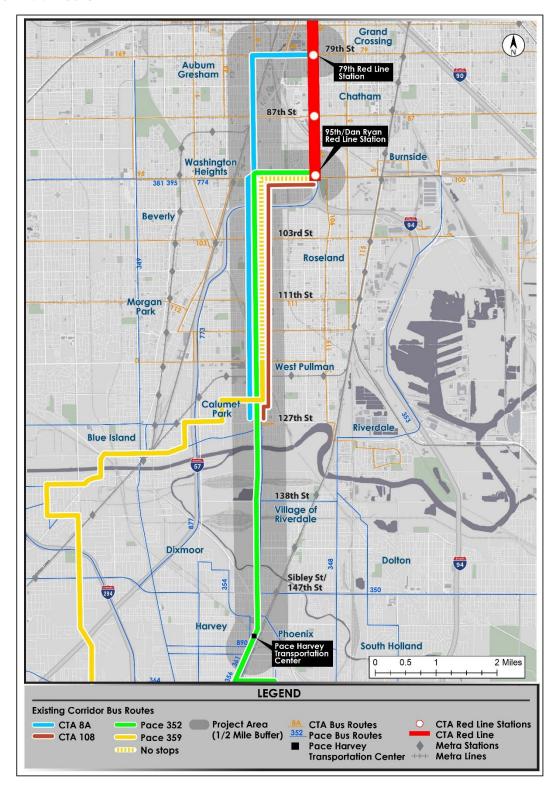
The Chicago Transit Authority (CTA) in partnership with Pace Suburban Bus propose the South Halsted Bus Corridor Enhancement Project to improve transit along approximately 11 miles of South Halsted Street, from the Pace Harvey Transportation Center to 79<sup>th</sup> Street. As shown in Figure 1.1, the corridor also includes segments of 79<sup>th</sup> and 95<sup>th</sup> Streets that provide connections to the CTA Red Line 79<sup>th</sup> and 95<sup>th</sup> Street Stations. As described in the project's *Purpose and Need Statement*, the need for this project stems from the extended travel times, gaps in service during off peak hours, and limited rapid transit options experienced by riders of the South Halsted Corridor. Potential enhancements to improve overall service consists of reducing travel times by utilizing different rapid transit strategies, increasing transit connectivity, and improving passenger waiting areas. The purpose of the project is to decrease transit travel time, develop service coordination to better meet service gaps, and improve quality of service throughout the South Halsted Corridor.

Following the completion of the *Existing Conditions and Needs & Deficiencies Report*, analysis for the project involved two screenings to define and narrow potential improvement alternatives. The project team began by developing bus enhancement concepts that could be used to make improvements to the corridor. These concepts were then screened based on several measures of effectiveness, which served as a defined set of criteria used to evaluate each improvement strategy. Measures of effectiveness for the first screening include: bus travel time, reliability, traffic impacts, parking impacts, widening/median impacts, relative cost, and grant opportunities. Screening results were then shared with the project Corridor Advisory Group (CAG), comprised of local stakeholders. The CAG provided feedback and direction that was used for further evaluation of each strategy, including recommended updates to the measures of effectiveness: adding person throughput and economic impact potential to the measures of effectiveness and removing grant opportunities.

A second screening evaluated three corridor improvement alternatives with varying levels of bus enhancements. These three alternatives were presented to the CAG, which provided its feedback for the three alternatives.



**FIGURE 1.1: PROJECT AREA** 





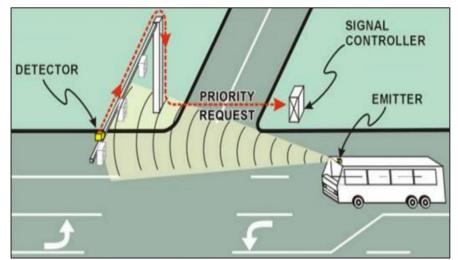
# 2. Corridor Improvement Strategies

The Existing Conditions and Needs & Deficiencies Report examined opportunities for improvement for the South Halsted Bus Corridor Enhancement Project. As a result, several improvement strategies were identified. The improvement strategies include transit signal priority (TSP) and signal optimization, queue jumps, bus lanes, station improvements, and limited stop service. Each of these strategies are described below.

#### 2.1. TSP AND SIGNAL OPTIMIZATION

TSP and signal optimization enable buses to more effectively move through signal-controlled intersections without significantly disrupting traffic. Signal optimization is the practice of rebalancing signal timings to ensure the efficient movement of vehicles. TSP typically involves buses that can send a priority request to a signal controller, which may provide an early or extended green signal for transit vehicles. The signal priority is determined based on the bus location, schedule, and the current traffic-signal phasing. This early or extended green can take place at either the beginning or end of the green signal phase, depending on how soon the bus

FIGURE 2.1: TRANSIT SIGNAL PRIORITY CONCEPT



will approach the signal.

Typical practice is for

TSP to only be utilized for buses that are running behind schedule.



FIGURE 2.2: QUEUE JUMP SIGN (LEFT) AND EXAMPLE ON LOOP LINK CORRIDOR (RIGHT)





This is not signal preemption, which is used by emergency vehicles to guarantee green lights for the length of their journey. Nonetheless, TSP and signal optimization help buses recover lost time and maintain reliable schedules. Signal optimization and TSP are being undertaken throughout the Chicago metropolitan area, including the South Halsted Corridor, through the Regional Transportation Authority's (RTA) Regional Transit Signal Integration Program. Signal optimization has already been completed south of 127<sup>th</sup> Street with TSP to follow in 2019 or 2020. Optimization and TSP north of 127<sup>th</sup> Street are planned to follow, but the timeline for implementation has not yet been determined.

#### 2.2. QUEUE JUMPS

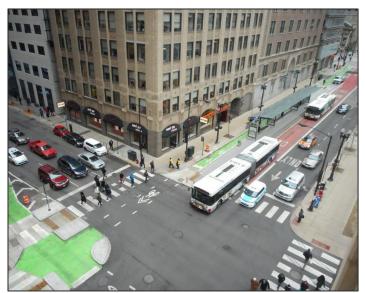
Queue jumps are typically designated bus lanes located at intersections accompanied with dedicated signals that prioritize buses. They allow buses to bypass queued traffic at intersections with the intention of reducing bus delays. For buses stopped at a signal, this approach can also give buses a head start before the general traffic. Some queue jumps operate with cameras, that trigger the signal when a bus is present. Others operate like TSP, and a priority request is sent to a signal controller to provide an advanced green for an approaching bus using a separate transit signal. In queue jumps that are shared with right turning vehicles, this priority request can also provide an early green arrow to clear out right-turning vehicles.



#### 2.3. BUS LANES (PEAK OR 24 HOUR)

Bus lanes are dedicated lanes exclusively for transit use. Bus lanes help buses bypass general traffic congestion. Bus lanes can be in operation 24 hours per day or only during peak periods. For the South Halsted Corridor, the proposed bus lanes would be located adjacent to the curb, repurposing space that is currently street parking or a travel lane, depending on the segment of the corridor. Like with queue jumps, right turning vehicles would be allowed to enter the bus lane to access adjacent side streets and driveways. In bus lanes that are shared with right turning vehicles, this priority request can also provide an early green arrow to clear out right-turning vehicles.

FIGURE 2.3: LOOP LINK BUS LANE (LEFT) AND JEFFERY JUMP BUS LANE (RIGHT)





This strategy would maximize the benefit to transit by minimizing instances where buses are slowed by general traffic. Bus lanes assist in reducing transit delays due to congested traffic operations.

Median or center running bus lanes were considered during the earliest phase of the project. This option was not carried forward due to the need for a new fleet of buses with both right- and left-side doors, its lack of consistency with the existing Pulse program, and the desire not to implement contra-flow lanes that would be needed if buses with right side doors were used for a center running operation.



#### 2.4. STATION IMPROVEMENTS

Station improvements include near-level boarding to mitigate accessibility issues, heated shelters that offer seating, enhanced lighting to increase safety, and vertical markers that provide real-time and static information. Additional upgrades consist of installing trash receptacles, bicycle racks, and landscaping. Collaboration with local communities can help determine which updates would be preferred at each station. Station improvements would improve the comfort and experience of riders. These new stations would also help to give a sense of placemaking and permanence that presents an opportunity for economic investment and community development.

#### 2.5. LIMITED STOP SERVICE

Limited-stop service provides more rapid service for a reduced number of stops. When considering transit operations, each required bus stop takes time for passengers to board and alight, as well as time for the bus to decelerate, accelerate, and merge with general traffic. Fewer bus stops thus speeds up overall running time and improves reliability. Limited-stop service stations would be placed in areas with high existing ridership and spaced between one-half to three quarters of a mile apart to allow for a convenient walking distance. The local bus service would remain in place and continue to serve the local bus stops.



# 3. Screen 1: Preliminary Corridor Improvement Concepts

With the bus enhancement strategies identified above in Section 2, the project team initiated Screen 1. During Screen 1, corridor improvement strategies were evaluated and prioritized. This was done by comparing measures of effectiveness for each preliminary concept including Concept 1: Queue Jumps and Concept 2: Bus Lanes. Screen 1 identified bus enhancement concepts which would be most effective in meeting the project's purpose and need as well as being accepted by the community. Station improvements for the portion of the corridor served by Pace are defined though Pace's existing Pulse Program. Pulse service could be implemented regardless of the selected concept. Limited-stop locations were identified through a combination of ridership and spacing requirements associated with walksheds. Station locations were further evaluated through fieldwork and consideration for local land use and infrastructure conditions. These qualitative analyses were conducted both during the existing conditions assessment and refined at later stages of the study. Throughout the process, it was assumed that station locations would remain constant regardless of the selected concept.

This section describes measures of effectiveness for Screen 1, preliminary concepts evaluated, the selected limited-stop locations, and stakeholder input.

#### 3.1. MEASURES OF EFFECTIVENESS

Measures of effectiveness were developed to compare the preliminary bus enhancement concepts for queue jumps and bus lanes. The *Existing Conditions and Needs and Deficiencies Report* called attention to the insufficiencies and opportunities present within the South Halsted Corridor including bus travel time, on time performance, and station quality/amenities. Evaluation criteria were created from the key factors identified in the report. These measures of effectiveness include bus travel time, reliability, traffic impacts, parking impacts, widening/median impacts, grant opportunities, and relative cost. They provided a means to prioritize the application of queue jumps and bus lanes along the corridor. A description of each of the measures of effectiveness are as follows:

- Bus Travel Time: The effectiveness of each concept at increasing bus speed and reducing time at intersections to improve overall bus travel time through the corridor.
- Reliability: The effectiveness of each concept at maintaining consistent waiting and travel times. In addition to buses' ability to adhere to posted schedules, it also includes riders' perception of travel time consistency.

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- <u>Traffic Impacts</u>: Some concepts may repurpose a travel lane or modify signal timing. Altering the existing conditions could impact general traffic.
- Parking Impacts: Some concepts may repurpose parking in sections of the corridor. Eliminating parking options in the area could impact current use by drivers and/or businesses.
- Widening/Median Impacts: Certain concepts may require additional space within the roadway to accommodate the proposed geometry of the new configuration. In some cases, the additional space could come from the parkway (i.e. grassy area between road and sidewalk) or narrowing the roadway median. In areas where there are planted medians, narrowing could influence the type of the vegetation appropriate for planting including street trees. In general, configurations that required narrowing a sidewalk significantly were not considered.
- Grant Opportunities: High quality transit features make the project eligible and/or more likely to be funded by certain federal, state, or local grants. The Federal Transit Administration's (FTA) Small Starts program provides competitive grants to transit projects that plan significant improvements to transit mobility, ridership, and service quality. Eligibility for such federal grants reduces the local cost of the project.
- Relative Cost: The cost of the project varies depending on the existing conditions of the roadway and the concepts selected.

#### 3.2. PRELIMINARY CONCEPTS

The primary goal of Screen 1 was to evaluate and prioritize the application of improvement strategies along the corridor. This screening sought to compare queue jumps and bus lanes. Limited stop service and station improvements were considered separately and could be implemented alongside either option. The preliminary concepts were developed using the data collected in the *Existing Conditions and Needs and Deficiencies Report*. A general description of the preliminary concepts is included below.

#### 3.2.1. Concept 1 - Queue Jumps

The first concept involves the application of queue jumps at individual intersections from 79<sup>th</sup> Street to 154<sup>th</sup> Street. As shown in Figure 3.1, which provides an aerial view of a sample intersection on South Halsted Street, the inclusion of a queue jump would be added to the right most lane on the approach to the intersection. General traffic would still be permitted to access the queue jump lane to make right turns. As described in Section 2.2, a special transit-specific



signal would also be installed to allow the bus early entry into the intersection and to clear out any vehicles turning right.

FIGURE 3.1: QUEUE JUMP TYPICAL INTERSECTION



As noted in Table 3.1, the addition of queue jumps would save an average of 4 to 8 seconds per intersection, which would improve bus travel time and reliability at each of the signalized intersections along the South Halsted Corridor. Overall impacts to traffic are anticipated to be low, with some minor impacts to general traffic at intersections.

**TABLE 3.1: CONCEPT 1 CHARACTERISTICS** 

Measure	Impact	
Bus Travel Time	Average savings of approximately 4-8 seconds <sup>1</sup> per intersection, or approximately 5% for entire corridor; only available/necessary at 28 intersections	
Reliability	Increase travel time reliability	
Traffic Impacts Low, some minor impacts at intersections		
Parking Impacts	314 spaces at 28 intersections (approx. 11 spaces per intersection)	
Median/Widening Impacts	Typically 1 to 4 feet at intersections	
Grant Opportunities	Limited	
Relative Cost	Medium Low	

<sup>&</sup>lt;sup>1</sup> TCRP Report 118, BRT Practitioner's Guide, Page S-9, Exhibit S-3



Appendix D: Traffic Analysis contains additional details regarding the traffic analysis, including a list of the signalized intersections along the corridor. Queue jumps typically require an additional width of about 1 to 4 feet within the roadway at intersections. In areas with on-street parking, several spaces on both sides of the intersection would be removed to accommodate the queue jump. South of 129th Place, the general travel lanes could shift, converting existing low volume left turn lane into a left and through lane to accommodate the queue jumps. An alternate option would be to widen the road, impacting the parkway and/or sidewalk, for a queue jump lane. This condition occurs at four intersections including 134th Street, 138th Street, 144th Street, and 147th Street/Sibley Avenue. The addition of queue jumps at each of the corridor's 28 signalized intersections would result in the removal of about 9 spaces per intersection, or 253 parking spaces along the South Halsted Corridor.

The relative cost of this concept is low to moderate. Though dedicated transit lanes are not required for a project to be eligible for FTA Small Starts funding, the lack of any dedicated lanes for this option may limit grant funding opportunities as the project may be viewed as less competitive for this grant.

#### 3.2.2. Concept 2 - Bus Lanes

Concept 2 involves the application of bus lanes that provide a more comprehensive approach for prioritizing transit by creating or reserving a dedicated transit lane on the curbside along the corridor. As this phase of the study, the two reviewed bus-lane options were (1) only during peak hours, and (2) 24 hours a day. Further, the application of the bus lanes was considered from 79th Street to 103rd Street as well as from 79th Street to 154th Street at this stage in the process. Bus lanes from 79<sup>th</sup> Street to 103<sup>rd</sup> Street were considered during this screening because buses faced their slowest speeds in this section. Each option maintains existing bike lanes on the north end of the corridor. The extent of the bus lanes would be further screened later in the study. During the study, 79th Street was identified as a Bus Priority Zone corridor and improvements are being made within the project study area. Additional improvements to 79th Street and 95<sup>th</sup> Street could be considered as part of separate corridor studies. Figure 3.2 shows an aerial view of a sample intersection on South Halsted Street with the inclusion of a dedicated bus lane. In all cases, general traffic would be permitted to access bus lanes to facilitate right turns and driveway access. As with queue jumps, a special transit-specific signal would be added for the bus and right-turning vehicles.

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FIGURE 3.2: BUS LANE TYPICAL INTERSECTION



Implementing bus lanes would save an average of up to one minute per mile and enable buses to gain speed throughout the corridor, which would improve bus travel time.<sup>2</sup> Buses traveling in dedicated bus only lanes are less susceptible to congestion; they remove competition with the general traffic. Therefore, bus lanes would similarly increase reliability since buses can maintain consistent speeds.

Dedicated lanes could be created by converting either on-street parking (if available) or a general travel lane into a bus lane. Repurposing on-street parking would create parking impacts. but no traffic impacts. Repurposing a general travel lane may have traffic impacts, but no parking impacts. No on-street parking is available from 129th Place to 154th Street; conversion of a general travel lane into a bus lane is the only bus lane option along this specific section. While feasible to take either parking or travel lanes in different sections of the corridor, ensuring some degree of lane continuity throughout the corridor is important as well. In some cases, bus lanes would require additional space to convert a parking lane that is approximately 7 to 8 feet wide into a bus lane that is 11 feet wide. This would require moving the curbline to widen the roadway or narrowing the median through a portion of the corridor from 100th Street to 129th Place. Though narrowing/widening is needed to provide space for the bus lane, the remaining median width is generally greater than 7 feet and therefore able to accommodate street trees. This would retain the character of these segments. Also, where there is sidewalk narrowing, remaining sidewalk width is 9 feet or greater. Additional details are described in Section 4.2.6: Median Narrowing/Roadway Widening and Appendix K: Median Narrowing and Roadway Widening. The relative cost of this concept is greater than queue jumps, but the inclusion of bus

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<sup>&</sup>lt;sup>2</sup> TCRP Report 118, BRT Practitioner's Guide, Page S-9, Exhibit S-



lanes would result in greater overall transit improvements and make the project more competitive for federal Small Starts funding.

**TABLE 3.2: CONCEPT 2 CHARACTERISTICS** 

Measure	Impact	
Bus Travel Time	Average savings of approximately 1 minute per mile <sup>3</sup> in typical urban environment, or 6% savings to 103 <sup>rd</sup> Street and 13% savings to 154 <sup>th</sup> Street*	
Reliability Significantly improve travel time and reliability beyond queue jumps		
Traffic Impacts	Low if dedicated lanes repurpose parking  Moderate if existing travel lane is repurposed	
Parking Impacts	Halsted (79 <sup>th</sup> to 103 <sup>rd</sup> ): ~718 spaces (28 per block) Halsted (103 <sup>rd</sup> to 127 <sup>th</sup> ): 874 spaces (32 per block) 79 <sup>th</sup> : 132 spaces (9 per block) 95 <sup>th</sup> : ~238 spaces (17 per block)	
Median/Widening Impacts	Moderate, typically 2 to 6 feet median narrowing; some roadway widening may also be required	
Grant Opportunities	High, FTA Small Start grant most competitive if significant dedicated lanes	
Relative Cost	Greater than Concept 1	

#### 3.2.3. Limited Stop Service & Station Improvements

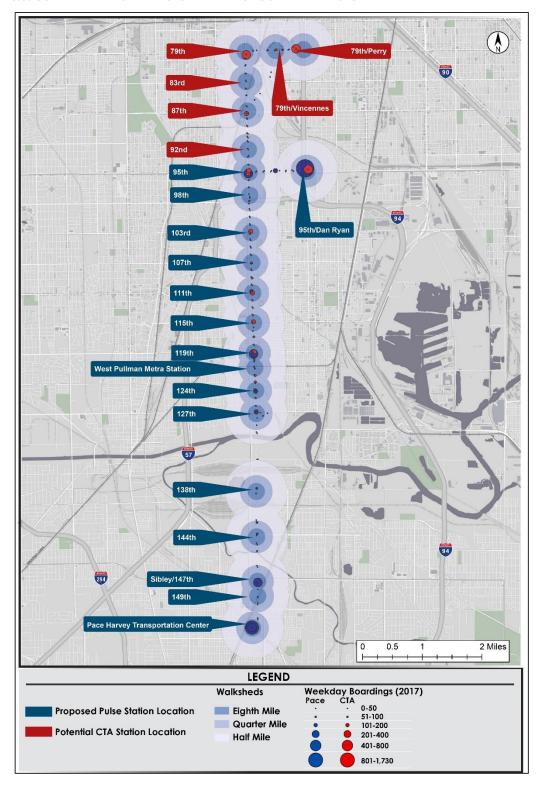
For both preliminary concepts summarized above, limited-stop service and station improvements are proposed. To improve transit running time and provide for a cost-effective investment, station locations would be optimized based on consideration for stations with the highest boardings and alightings, balanced with walking distance between stations. Figure 3.3 shows a graphic depicting ridership at each existing bus stop and walkshed distances at proposed limited stop stations. Proposed limited stop stations are indicated by a flag symbol. Limited-stop service stations are proposed to be spaced approximately a half mile apart along the South Halsted Corridor, which would ensure that 98% of the existing riders would be within quarter of a mile from where they currently board, rather than at every block. A quarter mile is typically a five-minute walk for most riders when Americans with Disabilities Act (ADA) compliant sidewalks are provided.<sup>4</sup>

<sup>&</sup>lt;sup>3</sup> TCRP Report 118, BRT Practitioner's Guide, Page S-9, Exhibit S-

<sup>&</sup>lt;sup>4</sup> The need for accessible pedestrian infrastructure is discussed in the *Existing Conditions and Needs & Deficiencies Report*. If station locations require a change to walking routes, the agency responsible for sidewalk maintenance should provide input on ADA compliance and maintenance issues within the area.



FIGURE 3.3: CURRENT RIDERSHIP BY STOP AND PROPOSED LIMITED STOP PATTERN





In addition to limited-stop service, station improvements would occur at the proposed locations following the design guidelines established by Pace for their Milwaukee<sup>5</sup> and Dempster<sup>6</sup> Pulse Corridors. A rendering of a station on the Pulse Corridor is shown in Figure 3.4. These upgraded stations would include near-level boarding to mitigate accessibility issues, heated shelters that offer seating, enhanced lighting to increase safety, and vertical markers that provide real-time and static information. The near level station platforms also speed the boarding process and reduce overall travel time. Pace's Pulse program also provides opportunities for art space on wind screens for community designed etched images. Stations could be implemented independent of any roadway treatments.

FIGURE 3.4: PACE PULSE STATION CONCEPTUAL RENDERING



<sup>&</sup>lt;sup>5</sup> Milwaukee Corridor Arterial Rapid Transit – Project Definition Report, December 2014. https://pulse.pacebus.com/images/reports/TR\_PMO\_MilwaukeeARTProjectDefinition\_2014-12-31.pdf

<sup>&</sup>lt;sup>6</sup> Pulse Dempster Line: Project Definition, August 2016. https://pulse.pacebus.com/images/TR\_PMO\_DEMP\_ProjectDefinition.pdf



#### 3.3. STAKEHOLDER INPUT

Preliminary Concept 1: Queue Jumps, Concept 2: Bus Lanes, and the proposed location of limited stops were presented to the Corridor Advisory Group (CAG) on October 16, 2018. Eighteen CAG members were in attendance representing City of Chicago Aldermen, South Suburban communities, and partner agencies. The meeting recapped the existing conditions discussed during the first CAG meeting and provided an overview of the preliminary concepts and evaluation criteria. Below are comments and recommendations received for these preliminary concepts. Appendix B: CAG Meeting 2 Summary provides additional detail regarding this CAG meeting.

#### 3.3.1. Comments/Recommendations: Roadway Concepts

Overall, the CAG members were in support of the decreased travel times and increased reliability that would result from either queue jumps or bus lanes. There was no opposition to the concept of bus lanes. However, the CAG members did express concerns regarding the potential loss of parking and roadway widening, especially if sidewalk widths were reduced. Narrowing medians was a preferred approach. When there were questions about how bike infrastructure was being accounted for in the study, several participants indicated that they did not support extending bike lanes. Regarding parking, there was concern for loss of parking in commercial and residential areas along the north end of the corridor. CAG members proposed that the team explore areas along the corridor where parking is underutilized or near businesses that open after AM peak hours. Also, CAG members requested that person throughput and economic development opportunities be added and grant funding be eliminated as a measure of effectiveness.

#### 3.3.2. Comments/Recommendations: Limited Stops

Overall, CAG members were in support of station upgrades that create a sense of place, provide for branded transit service, and provided greater lighting as proposed as part of Pace's Pulse Station Program. In general, CAG members agreed with the project team's identification of high ridership bus stops and the general locations of proposed limited stop stations. There was a desire by several members that stations should be located close to proposed new developments along the corridor.

# 4. Screen 2: Refined Corridor Improvement Alternatives

With results from Screen 1, three refined alternatives for the South Halsted Bus Corridor Enhancement Project were developed including:

- Alternative 1: Queue Jumps Entire Corridor Length
- Alternative 2: Queue Jumps with Bus Lanes South of 129<sup>th</sup> Place
- Alternative 3: Queue Jumps with Bus Lanes South of 100<sup>th</sup> Street

#### This section includes:

- Description of each of the three refined alternatives including updated measures of effectiveness
- Results of additional analysis completed following Screen 1 for each refined alternative including traffic analysis, parking utilization, bus speed and reliability, ridership and person throughput, economic impact potential, and environmental considerations
- Concept Station Locations
- Stakeholder Input.

#### 4.1. REFINED CORRIDOR IMPROVEMENT ALTERNATIVES

Three refined alternatives for the South Halsted Bus Corridor Enhancement Project were developed for Screen 2 including Alternative 1: Queue Jumps Entire Corridor Length, Alternative 2: Queue Jumps with Bus Lanes South of 129<sup>th</sup> Place, and Alternative 3: Queue Jumps with Bus Lanes South of 100<sup>th</sup> Street. Overviews of each alternative and its measures of effectiveness are described below. Additional analyses performed following Screen 1 are found in Section 4.2: Improvement Alternatives Additional Analysis.

#### 4.1.1. Alternative 1: Queue Jumps Entire Corridor Length

Alternative 1 involves queue jumps throughout the corridor as well as two small sections with bus lanes, as shown on the map in Figure 4.1. A typical intersection is shown in Figure 4.2. Though there is some variation of lane and median width along the corridor, Figure 4.3 shows a typical cross section sample. All queue jumps from 79<sup>th</sup> Street to 129<sup>th</sup> Place would require removing parking spaces. In many cases, median narrowing or roadway widening would be

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required at intersections in this section. Where widening does occur, the remaining sidewalks would be wider than the required minimum standards for ADA compliance. The remaining queue jumps in the southern portion of the corridor would be created by occupying the rightmost travel lane at the intersection and shifting general traffic lanes. This would convert existing low volume left turn lanes to a through and left lane. Alternatively, retaining the low volume left-turn lane by widening the roadway is possible.

Queue jumps are also proposed at signalized intersections along 79<sup>th</sup> Street and 95<sup>th</sup> Street. On South Halsted from 98<sup>th</sup> Street to 100<sup>th</sup> Street, several consecutive traffic signals are close together, allowing the queue jumps to operate much like a bus lane. This proposed bus lane would reduce a travel lane. The proposed bus lane on 79<sup>th</sup> Street from South Halsted Street to South Lowe Avenue would remove parking, as per the *CTA 79<sup>th</sup> Street Slow Zone Study*. Conceptual Improvement Plans for Alternative 1 are included as Appendix A: Conceptual Corridor Improvement Plans.



#### **FIGURE 4.1: ALTERNATIVE 1**

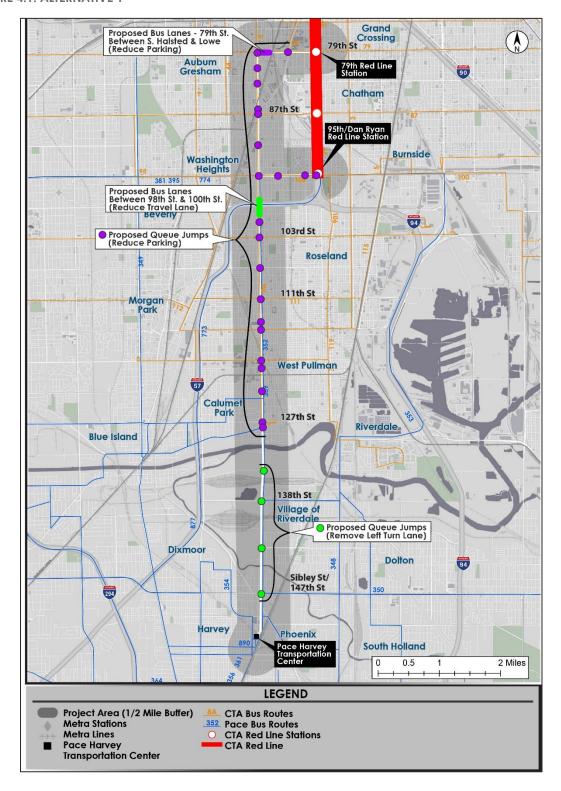




FIGURE 4.2: ALTERNATIVE 1 TYPICAL INTERSECTION

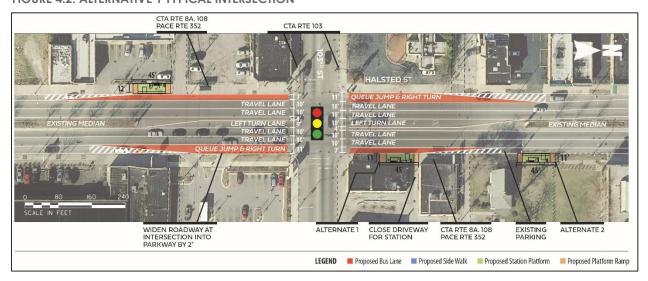
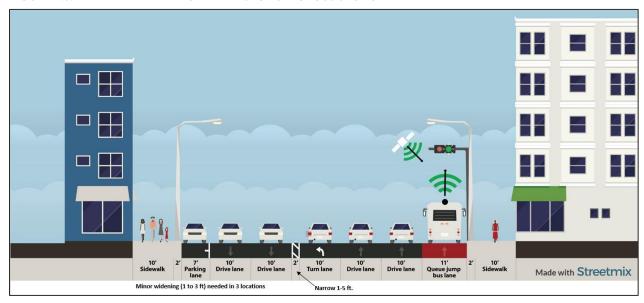


FIGURE 4.3: ALTERNATIVE 1 TYPICAL INTERSECTION CROSS SECTION



Alternative 1 would include up to 28 intersections within the South Halsted Corridor which would accommodate queue jumps and short sections of bus lanes. These improvements are estimated to decrease bus travel time by approximately 5% for the entire corridor, which includes savings from TSP and Signal Optimization. Queue jumps would also improve bus service reliability as buses will be able to jump ahead of queuing vehicles at signals when traffic is heavy. Section 4.2.3: Bus Speed and Reliability provides additional details. The addition of



queue jumps would pose minor impacts to general traffic at intersections. Section 4.2.1: Traffic, provides additional details. The queue jumps and the associated bus lanes would require approximately nine parking spaces per intersection. At 18 intersections, medians would need to be narrowed by one to five feet to accommodate the queue jumps. At three intersections where the median cannot be narrowed sufficiently, roadway widening of one to two feet is required. Two of these widening locations would require narrowing of the sidewalk; the other would require narrowing of the parkway. Where widening does occur, the remaining sidewalks are wider than the required minimum standards for ADA compliance. These measurements are based on preliminary estimates and will be confirmed when field survey is completed in the advanced conceptual design phase of the program. Alternative 1 is relatively low in cost compared to Alternatives 2 and 3. Modest improvements in passenger throughput would also occur. Section 4.2.4: Ridership and Person Throughput provides additional information. Also, there may be opportunities for economic development at bus station locations. Table 4.1 below provides a summary of the updated measures of effectiveness for Alternative 1.

**TABLE 4.1: ALTERNATIVE 1 MEASURES OF EFFECTIVENESS** 

Measure	Impact	
Bus Travel Time	Average savings of approximately 4-8 seconds <sup>7</sup> per intersection; Approximately 5% for entire corridor (onlavailable/necessary at 28 intersections) plus 3% savings from TSP and Signal Optimization	
Reliability	Increase travel time reliability	
Traffic Impacts	Low traffic impacts, some minor impacts at intersections	
Parking Impacts	Total of 314 spaces impacted at 28 intersections (approximately 11 spaces per intersection) plus up to 53 additional spaces to integrate far side bus stations (approximately 10 per intersection)	
Median/Widening Impacts	Narrow median 1 to 5 feet at 18 intersections (typical) and Widen roadway (parkway or sidewalk) at 3 intersections 1 to 2 feet (typical)	
Relative Cost	Low as compared to Alternatives 2 and 3	
Person Throughput	Modest improvements in passenger throughput with current service levels based on:  Modest increases in persons on transit; estimated transit ridership increase of 3% (Estimated increase of 300 riders per day and 13 peak hour, peak direction riders)  No change to persons in autos; no significant impacts on auto traffic capacity  Potential for greater improvements in person throughput capacity with additional transit service frequencies leading to increased transit ridership without affecting road capacity	
Economic Impact Potential	Opportunities for development at many station areas	

<sup>&</sup>lt;sup>7</sup> TCRP Report 118, BRT Practitioner's Guide, Page S-9, Exhibit S-3



#### 4.1.2. Alternative 2: Queue Jumps with Bus Lanes South of 129th Place

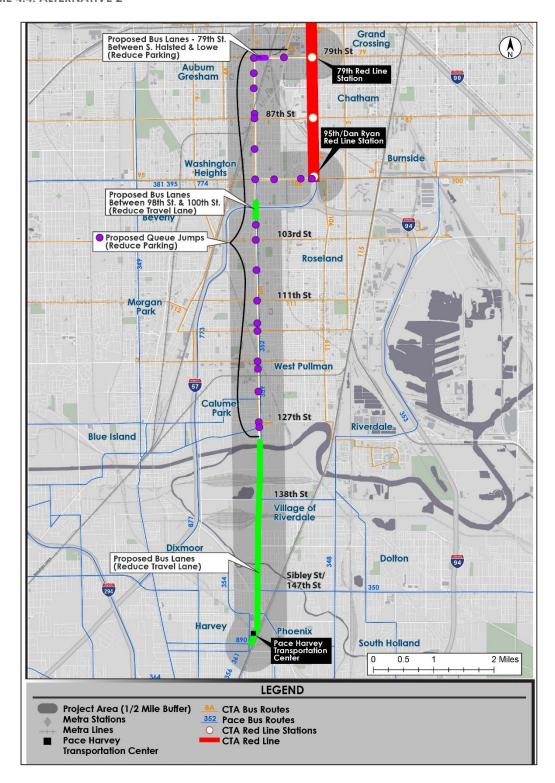
Alternative 2 builds on the concepts of Alternative 1 and adds a section of bus lanes in the southernmost section of the corridor, from 129<sup>th</sup> Place to the Pace Harvey Transportation Center, as shown in Figure 4.4. From 129<sup>th</sup> Place to 154<sup>th</sup> Street, Alternative 2 converts a general purpose lane to a bus lane.

Figure 4.5 shows an aerial view of a typical bus lane in this section. As with queue jumps, right turns and business access to driveways for general traffic would be allowed from the bus lane.

Figure 4.6 shows a typical cross section for this area of South Halsted with bus lanes. In most areas, widening is not required. Generally, existing traffic volumes in this section of the corridor are low enough that consideration can be given to replacing a travel lane with a bus lane. Current annual average daily traffic (AADT) on this section of the corridor is up to 16,100 vehicles per day, which translates to a peak period, peak direction hourly volume of approximately 600 to 1,000 vehicles per hour. Single lane capacity for an urban arterial is approximately 1,900 vehicles per hour. Alternative 2 considers what is needed for today and reserves space for future transit needs. Conceptual drawings for Alternative 2 are included as Appendix A: Conceptual Corridor Improvement Plans.



#### **FIGURE 4.4: ALTERNATIVE 2**





#### FIGURE 4.5: ALTERNATIVE 2 TYPICAL INTERSECTION

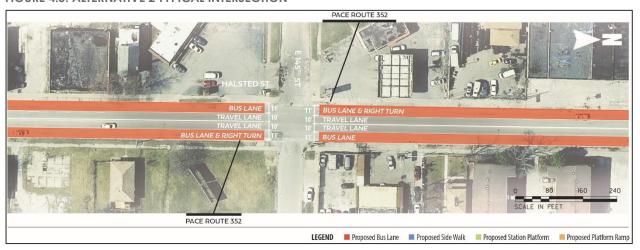


FIGURE 4.6: ALTERNATIVE 2 TYPICAL CROSS SECTION

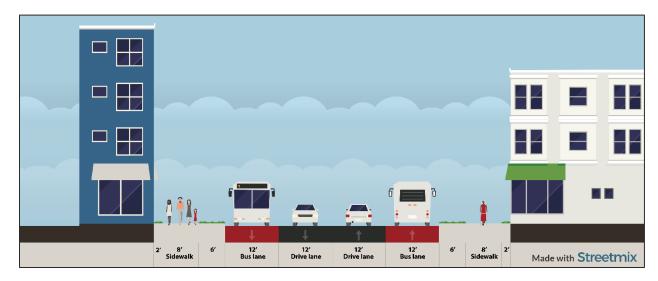


Table 4.2 provides a summary of the updated measures of effectiveness for Alternative 2. Alternative 2 is estimated to decrease bus travel time by approximately 8% for the entire corridor. Section 4.2.3: Bus Speed and Reliability provides additional details. Due to the bus lane on South Halsted from 129<sup>th</sup> Place to 154<sup>th</sup> Street, Alternative 2 would provide greater reliability compared to Alternative 1. The southern section of the corridor currently experiences less congestion, therefore, repurposing a travel lane would have a low to moderate impact on the general traffic. Section 4.2.1: Traffic, provides additional details. The queue jumps would require up to 10 parking spaces per intersection with farside stations. Additional roadway space would be required to accommodate the queue jumps. Primarily, this could be achieved through



narrowing medians, though some minor road widening may also be required at intersections, including some locations where sidewalks would need to be narrowed. The extents of the proposed widening will be further refined during the advanced conceptual design phase base on field survey of roadway widths. No widening is needed for the bus lane south of 129<sup>th</sup> Place. While the relative cost is greater than Alternative 1, no additional significant changes to roadway geometry would be required. Alternative 2 would have a greater person throughput per hour of revenue service compared to Alterative 1; additional details are provided in Section 4.2.4: Ridership and Person Throughput. Alternative 2 also provides opportunities for increased economic development at bus station locations and in the southern section of the corridor because of the increased sense of permanence that bus lanes provide.

**TABLE 4.2: ALTERNATIVE 2 MEASURES OF EFFECTIVENESS** 

Measure	Impact	
Bus Travel Time	Queue jump performance is the same as Alternative 1; in addition, average savings from bus lanes of approximately 1 minute per mile <sup>8</sup> in typical urban environment, or 8% savings total for this alternative plus 3% savings from TSP and Signal Optimization	
Reliability	Significantly improve travel time and reliability beyond queue jumps	
Traffic Impacts	Medium/Low traffic impacts, removing travel lanes in southern section where traffic is light	
Parking Impacts	Total of 314 spaces impacted at 28 intersections (approximately 11 spaces per intersection) plus up to 53 additional spaces to integrate far side bus stations (approximately 10 per intersection)	
Median/Widening Impacts	Narrow median 1 to 5 feet at 18 intersections (typical) and Widen roadway (parkway or sidewalk) at 3 intersections 1 to 2 feet (typical)	
Relative Cost	Greater than Alternative 1, but no additional significant changes to roadway geometry	
Person Throughput	Increased improvements in passenger throughput with current service levels based on:  Modest increases in persons on transit; estimated transit ridership increase of 4% (Estimated increase of 500 riders per day and 21 peak hour, peak direction riders)  No change to persons in autos; no significant impacts on auto traffic capacity  Potential for greater improvements in person throughput capacity with additional transit service frequencies leading to increased transit ridership without affecting road capacity	
Economic Impact Potential	Opportunities for development at many station areas and in the South section of corridor because of increased sense of permanence that bus lanes provide	

<sup>&</sup>lt;sup>8</sup> TCRP Report 118, BRT Practitioner's Guide, Page S-9, Exhibit S-2



#### 4.1.3. Alternative 3: Queue Jumps with Bus Lanes South of 100th Street

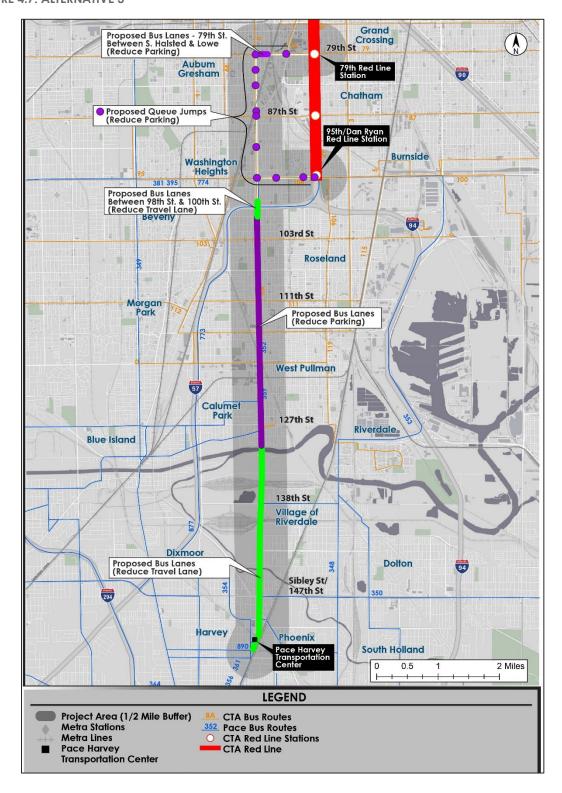
Alternative 3 builds on Alternative 2 by providing an additional section of bus lanes from 100<sup>th</sup> Street to 129<sup>th</sup> Place. In this case, lanes would be created by converting underutilized existing on-street parking into a bus lane. This would create a continuous bus lane from 98<sup>th</sup> Street to 154<sup>th</sup> Street, as shown in Figure 4.7.

As shown in the typical intersection plan in Figure 4.8, bus lanes would be deployed in the existing curbside parking lane throughout this section of the corridor. General traffic would be permitted to use the bus lane to make right turns at intersections and to access local driveways. Conversion of an approximately 7 to 8-foot-wide parking lane into an 11-foot-wide bus lane would necessitate changes to the roadway cross section to create additional space, mostly through narrowing medians. Section 4.2.6: Median Narrowing/Roadway Widening provides additional analysis regarding current expectations for the extent and impacts of median narrowing. The extents of the proposed widening will be further refined during the advanced conceptual design phase based on field survey of roadway widths. Some roadway widening at intersections may also be needed. Figure 4.9 illustrates a typical cross section in this area of the project.

The project team identified this area along South Halsted Street for parking to potentially be repurposed for a dedicated bus lane, because it is primarily commercial rather than residential, and off-street parking in this area is prevalent. A survey of on-street parking use found relatively low utilization of on-street spaces, on average between 7 and 11%, and no block exhibited utilization over 45%. The study team estimated that only 11 out of approximately 800 parcels in this section of the corridor do not have off-street parking on or directly adjacent to the parcel. Refer to Section 4.2.2: Parking of this report for details. Conceptual plans for Alternative 3 are included as Appendix A: Conceptual Corridor Improvement Plans.



#### **FIGURE 4.7: ALTERNATIVE 3**



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#### FIGURE 4.8: ALTERNATIVE 3 TYPICAL INTERSECTION

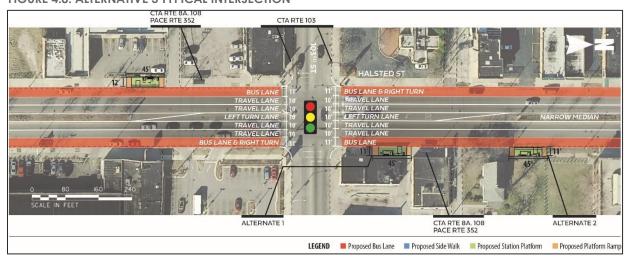


FIGURE 4.9: ALTERNATIVE 3 TYPICAL CROSS SECTION

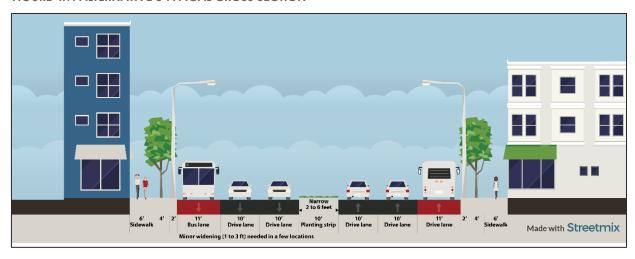


Table 4.3 lists the updated measures of effectiveness for Alternative 3. Alternative 3 is estimated to improve bus travel time by approximately 10% for the entire corridor. Time savings from TSP and stop consolidation would provide additional time savings. Section 4.2.3: Bus Speed and Reliability, provides additional details. Since Alternative 3 would add a greater length of designated bus lanes, buses would be expected to experience an increase in average speed along a longer portion of the corridor. This not only improves bus travel times but also increases reliability since buses are less subject to traffic delays. Alternative 3 would have a low to moderate impact on traffic beyond Alternative 2, because the bus lanes would remove parking in the more congested areas of the corridor instead of a travel lane. Section 4.2.1: Traffic provides additional details. The impacts to parking, however, would be greater than Alternatives 1 and 2.

**FINAL REPORT** 



Median narrowing and/or roadway widening would be required throughout the section between 100th Street and 129th Place. Narrowing requirements would be one to six feet at 26 locations and 7.5 feet at two locations. In 22 locations, the remaining median would be 7 feet wide or greater, which would leave the median wide enough to retain street trees. In addition to median narrowing, roadway widening of 1 to 2.5 feet would be required in 37 locations with three additional locations requiring up to 3 feet of widening. Widening would require the reduction of only parkway in eight locations, only sidewalk in 27 locations, and a mix of parkway and sidewalk in four locations. In all cases, the remaining sidewalk would be at least one foot wider than is required to meet the CDOT and IDOT minimum required widths. Section 4.2.6: Median Narrowing/Roadway Widening provides additional analysis regarding the narrowing/widening requirements for this alternative. The relative cost is higher than Alternative 1 and 2. This alternative would have the greatest person throughput per hour of revenue service. Section 4.2.4: Ridership and Person Throughput, provides additional information.

**TABLE 4.3: ALTERNATIVE 3 MEASURES OF EFFECTIVENESS** 

Measure	Impact	
Bus Travel Time	Queue jump performance is same as Alternative 1 and 2; bus lane performance is the same as Alternative 2, or 10% savings total for this alternative plus 3% savings from TSP and Signal Optimization	
Reliability	Significantly improve travel time and reliability within city limits	
Traffic Impacts	Same as Alternative 2; low traffic impacts, removing travel lanes in southern section where traffic is light	
Parking Impacts	Same spaces impacted as Alternative 1 and 2 between 79th and 98th St.; total of 183 spaces (plus up to 6 additional if far side stations) impacted at 10 intersections (approximately 9 spaces per intersection) plus approximately 970 spaces between 98th St. and 129th on Halsted (approximately 32 spaces per block)	
Median/Widening Impacts	Narrow median 1 to 6 feet (typical) in 26 locations with 2 locations up to 7.5 feet and Widen roadway 1 to 2.5 (typical) in 37 locations with 3 locations up to 3 feet	
Relative Cost	Greater than Alternative 2, but no additional major changes to roadway geometry	
Person Throughput	<ul> <li>Greatest improvements in passenger throughput with current service levels based on:</li> <li>Modest increases in persons on transit; estimated transit ridership increase of 5% (Estimated increase of 550 riders per day and 24 peak hour, peak direction riders)</li> <li>No change to persons in autos; no significant impacts on auto traffic capacity</li> <li>Potential for greater improvements in person throughput capacity with additional transit service frequencies leading to increased transit ridership without affecting road capacity</li> </ul>	
Economic Impact Potential	Opportunities for development at many station areas; increased investment from bus lanes in south section of corridor as well as between 100 <sup>th</sup> and 129 <sup>th</sup> Place which contains several designated TIF Districts, Special Service Areas, and Thrive Zones	

<sup>&</sup>lt;sup>9</sup> TCRP Report 118, BRT Practitioner's Guide, Page S-9, Exhibit S-2



#### 4.2. IMPROVEMENT ALTERNATIVES ADDITIONAL ANALYSIS

The following section provides details regarding the additional analysis completed for each alternative. This includes traffic, parking, bus speed and reliability, ridership and person throughput, environmental screening, median narrowing and roadway widening, and bump outs.

#### 4.2.1. Traffic

The proposed transit improvements for the South Halsted Bus Corridor Enhancement Project include three different running way improvements. Descriptions of each of the alternatives are summarized in Table 4.4.

TABLE 4.4: SUMMARY OF ALTERNATIVES FOR SOUTH HALSTED CORRIDOR

Halsted Street Segment	Alternative 1	Alternative 2	Alternative 3	
79th Street to 98th Street (2.4 miles)				
98th Street to 100th Street (0.25 miles)		Bus Lane (Repurpose travel lane)		
100th Street to 129th Place (3.7 miles)	Queue Jumps (Repurpose parking)		Bus Lane (Repurpose parking/Narrow medians)	
129th Place to 154th Street (3.4 miles)	(Convert left turn lane to shared		Lane e travel lane)	
79 <sup>th</sup> Street (1.0 mile)	Queue Jumps (Repurpose parking)			
95 <sup>th</sup> Street Queue Jumps (1.0 mile) (Repurpose parking)				

#### **METHODOLOGY**

The traffic impacts for the South Halsted Bus Corridor Enhancement Project were analyzed using Synchro, a traffic analysis and signal optimization program created by Trafficware. Synchro is designed to approximate travel conditions at signalized intersections, unsignalized intersections, and roundabouts. Users input existing or proposed roadway geometry and signal layout along with observed turning movement counts and traffic volume data. Synchro then estimates the average travel delay expected at the intersection.



For the purposes of this study, all Synchro models were created with a design year of 2019, and existing CDOT and IDOT traffic signals were optimized for the existing volumes in each of the three alternatives. The modelling performed with Synchro examined the addition or removal of approach lanes. The analysis did not account for TSP which would require other modelling tools. Turning movement counts and traffic volume data collected for previous studies were used where available from CDOT. A complete list of turning count movements and intersections that were analyzed in Synchro is included in Appendix D: Traffic Analysis.

Signalized intersection level of service (LOS) is described in terms of the average observed delay for the intersection. LOS of A, B, or C indicates an intersection that is performing well, while a LOS of D is used as the minimum acceptable design standard. Intersections with a LOS of E are considered as performing poorly, and intersections with a LOS of F as failing. Table 4.5 summarizes the LOS criteria for signalized intersections as defined by the Highway Capacity Manual (2016). The analysis reviews intersection performance for the AM Peak (7-9 AM) and PM Peak (4-6 PM) periods.

**TABLE 4.5: INTERSECTION LEVEL OF SERVICE STANDARDS** 

Level of Service	Delay	Performance
A	≤ 10 seconds	Well
В	10-20 seconds	Well
С	20-35 seconds	Well
D	35-55 seconds	Acceptable
Е	55-80 seconds	Poor
F	> 80 seconds	Failure

#### **ALTERNATIVE 1**

Implementation of Alternative 1 would result in improved operations at the two intersections with an existing LOS of E during the AM peak period (103<sup>rd</sup> and 111<sup>th</sup> Street) because of right turning vehicles being allowed to use the queue jump lane. During the AM peak period, only Halsted Street & 99th Street and Parnell Avenue & 95<sup>th</sup> Street experience a reduction in LOS, from C to D and from A to B, respectively.

During the PM peak period, implementation of Alternative 1 would result in seven intersections improving their LOS at least one letter grade because of right turning vehicles being allowed to use the queue jump lane. Furthermore, implementation of Alternative 1 would result in LOS D or better for all but one intersection. The proposed changes under Alternative 1 at the intersection



of Halsted Street & 87<sup>th</sup> Street result in a deterioration from LOS D to LOS E. With the benefits to transit riders and the increased volume of people being moved through the intersection via transit, a LOS of E may be considered acceptable. This intersection would potentially benefit from additional modifications to help improve traffic flow and minimize delay due to the unique geometry and high traffic volumes present at the intersection. Further analysis utilizing other traffic simulation software such as Vissim (a more advanced traffic modeling tool) may help to explore other operational improvements.

#### **ALTERNATIVE 2**

South of 129<sup>th</sup> Place, where bus lanes are provided in Alternative 2, the level of service at all signalized intersections maintain LOS D or better during the AM peak period. During the PM peak period, all intersections maintain acceptable LOS of D or better except for Halsted Street & 147<sup>th</sup> Street, which reduces from D to E. Due to the benefits to transit riders and increased volume of people being moved through the intersection via transit, a LOS of E may be acceptable. Table 4.6 shows intersection performance from 128<sup>th</sup> Street to 154<sup>th</sup> Street under Alternative 2.

TABLE 4.6: ALTERNATIVE 2 INTERSECTION PERFORMANCE

Intersection	Existing Performance (AM Peak)	Proposed Bus Lane Performance (AM Peak)	Existing Performance (PM Peak)	Proposed Bus Lane Performance (PM Peak)
134th St & Halsted St	А	В	А	А
138th St & Halsted St	С	С	С	С
144th St & Halsted St	В	В	В	В
147th St & Halsted St	D	D	D	Е
149th St & Halsted St	D	D	D	D
149th St & Morgan St	А	В	В	В
150th St & Morgan St	В	В	В	В
154th St & Park Ave	В	В	А	А

#### **ALTERNATIVE 3**

Between 100<sup>th</sup> Street and 129<sup>th</sup> Place, where Alternative 3 proposes a bus lane that allows right turning vehicles, all signalized intersections maintain LOS C or better during the AM and PM peak periods. In addition to the LOS improvement at Halsted Street & 103<sup>rd</sup> Street and Halsted Street & 111<sup>th</sup> Street, all other intersections maintain their existing LOS or improve. The 11 intersections north of 103<sup>rd</sup> Street exhibit similar delay and LOS to those found in Alternative 1,



where queue jumps are used in place of the addition of a dedicated bus lane as described in Alternative 3.

#### **NEXT STEPS**

As the South Halsted Bus Corridor Enhancement project advances into the National Environmental Policy Act (NEPA) phase, advanced traffic analyses will need to be performed including but not limited to the following:

- More detailed analysis using Vissim modeling to review the impact that the proposed alternatives would have on CTA and Pace bus operations at key locations, e.g., 87th Street and 100th Street. This may include effects on bus timeliness and connectivity between other nearby transit options, such as the CTA Red Line.
- Further exploration into overall access for pedestrian and bicyclists from the proposed changes to geometry and signal timings.
- Detailed crash analysis.
- Detailed traffic analysis using the Highway Safety Manual methodology for each proposed cross-section.
- Road-diet analysis south of 129<sup>th</sup> Place, including the impact of removing travel lanes and/or turning lanes on queue management. IDOT has previously developed methods for analyzing road diets, including the effects of queuing in areas where travel lanes and turn lanes are narrowed or removed. Successful implementation of road diets, such as those found in Geneva along Route 31 and in Chicago along Sheridan Road, might serve as an appropriate blueprint for analysis on the South Halsted Corridor.
- Continue to gather input from stakeholders along the corridor including local businesses, neighborhood groups, and transit riders.

#### 4.2.2. Parking

Parking is an important consideration for an urban roadway improvement project. Each of the proposed alternatives would require the removal of on-street parking to create space for proposed bus lanes and queue jumps. Table 4.7 summarizes the total number of parking spaces in sections of the corridor as well as the number of on-street spaces required for a queue jump or bus lane, as per the proposed alternatives. In the case of queue jumps, the number of required spaces included both nearside spaces for the queue jump lane as well as several spaces on the far side of the intersection to provide space for the bus to remerge into traffic. Finally, to account for cases where there is consideration for moving an existing nearside



bus stop to the far side of an intersection, the table also includes the estimated number of additional spaces needed to accommodate Pace Pulse stations. The length of the queue jumps and the number of parking spaces required should be confirmed with additional analysis in the next phase of the study. Additional details regarding parking impacts, including block-by-block impacts are included as Appendix E: Parking.

In total, Alternative 1 and 2 would impact approximately 321 spaces at 28 intersections (approximately 11 spaces per intersection) plus up to 53 additional spaces to integrate far-side bus stations. Alternative 3 would impact the same spaces as Alternatives 1 and 2 between 79<sup>th</sup> Street and 98<sup>th</sup> Street. A total of 183 spaces (plus up to 6 additional if far-side stations are selected) are impacted at 10 intersections (approximately 18 spaces per intersection). In addition, Alternative 3 would impact approximately 970 spaces between 100<sup>th</sup> Street and 129<sup>th</sup> Place on Halsted Street (approximately 32 spaces per block).

Table 4.7 also includes the observed parking utilization for on-street spaces in each section of the corridor. For Alternative 3, parking removal is proposed to create space for a dedicated lane from 101<sup>st</sup> Street to 129<sup>th</sup> Place on South Halsted Street. This section of the corridor is primarily commercial rather than residential. A survey of on-street parking use found relatively low utilization of on-street spaces, on average between 7% and 11%, and no block exhibited utilization over 45%. There is also a significant amount of off-street parking in this area. The study team estimates that only 11 out of approximately 800 parcels in this section of the corridor do not have off-street parking on or directly adjacent to the parcel. A map showing the locations of these parcels is included in Appendix E: Parking.



**TABLE 4.7: PARKING IMPACTS** 

	Approximate Number of Current Parking Spaces			Approximate Spaces Re Alternativ	quired for	Approximate Number of Spaces Required for Alternatives 3		Approximate Number of Additional Spaces Required for Farside Stations	
Block	East Side of Street	West Side of Street	Parking Utilization*	West Side of Street	East Side of Street	West Side of Street	East Side of Street	West Side of Street	East Side of Street
79 <sup>th</sup> to 95 <sup>th</sup>	241	236	11%	38	39	38	39	1	5
95 <sup>th</sup> to 100 <sup>th</sup>	62	56	14%	8	8	8	8	0	0
101st to 129th	476	494	8%	62	76	476	494	19	28
129 <sup>th</sup> to 154 <sup>th</sup>	0	0	N/A	0	0	0	0	0	0
79th Street	42	45	4%	23	28	23	28	0	0
95 <sup>th</sup> Street	118	120	23%	20	19	20	19	0	0
Total	939	951	11%	151	170	565	588	20	33

<sup>\*</sup>Utilization rates are based on walkthrough of the corridor from 10 AM to 3:30 PM on Wednesday, June 13, 2018 and from 9 to 9:30 AM on Thursday, June 14, 2018.

#### 4.2.3. Bus Speed and Reliability

Improving bus speed and reliability is one of the key goals of this project. The roadway treatments proposed as part of Alternative 1, 2, and 3 would improve speed and reliability for CTA and Pace buses operating on the corridor. Bus speed was analyzed by applying accepted factors developed by the Transit Cooperative Research Program (TCRP) and applied to the various elements in each alternative. Reliability was not independently measured but is expected to improve in conjunction with travel time and reduced operation in mixed traffic.

Existing PM peak travel times were used as a basis for the analysis as shown in Table 4.8. The run times used in the table include the estimated travel time for each section of the corridor, from 79<sup>th</sup> Street and Perry Avenue to Pace Harvey Transportation Center plus the travel time between 95<sup>th</sup> Street Red Line Station and 95<sup>th</sup> Street & Halsted Street. The average existing bus speeds are based on current scheduled run-time during the PM peak plus average observed delay. Generally, implementing TSP is expected to provide approximately 4 to 8 seconds of improved running time per intersection, which would result in approximately 3% travel time savings along the entire corridor. Providing an express service offers the largest time savings. It is estimated that upwards of 22% time savings is achieved by reducing the number of instances that a bus must deaccelerate, stop, board and alight passengers, and accelerate. However, when the bus stops less frequently it also has fewer opportunities to pick up passengers. Though 98% of passengers currently board within a ¼ mile of a proposed station, some passengers would continue to need or desire to board at local stops. Under all infrastructure improvement alternatives, CTA and Pace intend to continue local service. Pairing express



service with local alternatives can help minimize potential ridership losses. Queue jumps are estimated to provide approximately 4-8 seconds of travel time savings per intersection. Implementing queue jumps throughout the corridor, as is proposed for Alternative 1, is anticipated to provide approximately 5% travel time savings. Bus lanes are expected to provide approximately 45 seconds of time savings per mile in a typical urban environment like the South Halsted Corridor. The bus lane improvements proposed as part of Alternative 2 and 3 are anticipated to provide approximately 8% and 10% additional travel time savings, respectively. Table 4.8 shows a comparison between each alternative, including the total travel time savings for each alternative when combined with TSP and express service. Appendix F: Bus Speed provides additional detail regarding estimating bus speed.

TABLE 4.8: ESTIMATED BUS SPEED IMPROVEMENT SUMMARY

Segment	Travel Time (min.)	Travel Time Savings (min.)	Percent Savings
Existing Conditions	60.1	-	-
TSP	58.3	1.8	3%
Express Service - 1/2 Mile Stations	47.2	13.0	22%
Alternative 1 Only	57.3	2.8	5%
Alternative 2 Only	55.1	5.0	8%
Alternative 3 Only	53.8	6.3	10%
Alternative 1 with TSP & 1/2 Mile Stations	42.6	17.6	29%
Alternative 2 with TSP & 1/2 Mile Stations	40.4	19.8	33%
Alternative 3 with TSP & 1/2 Mile Stations	39.0	21.1	35%

#### 4.2.4. Ridership and Person Throughput

Improved transit service, particularly faster service, has been shown to directly lead to increased ridership. Many factors have the potential to impact ridership including running speed, headway, span of service, stop location, and the perceived ride quality. Because these factors are interrelated, accurately predicting how changes to these combined factors along the South Halsted Corridor would affect overall ridership is difficult. For this study, the ridership analysis was limited to comparisons amongst the three proposed alternatives. This allows for an isolated comparison. The analysis is based on the anticipated runtimes shown in the previous section. Studies have shown a conservative estimated elasticity between speed and ridership of 2:1, meaning that a 2% speed improvement would lead to a 1% ridership increase. Using these assumptions, Table 4.9 shows the anticipated ridership increase under each alternative. The table also shows the expected increase in peak hour throughput, which assumes the same

<sup>10</sup> http://www.vtpi.org/elasticities.pdf



percent increase based on observed average hourly loads and amount of service in the corridor during that time.

TABLE 4.9: RIDERSHIP AND PERSON THROUGHPUT

Segment	Travel Time (min.)	Travel Time Savings (min.)	Percent Savings	Ridership Increase	Ridership	Avg Hourly Passenger Throughput
Existing Conditions	60.1	N/A	N/A	-	11,600	500
Alternative 1	57.1	3.0	5%	300	11,900	+13
Alternative 2	55.1	5.0	8%	500	12,100	+21
Alternative 3	54.4	5.8	10%	550	12,150	+24

Note: Numbers are rounded.

#### 4.2.5. Environmental Screening

To streamline the environmental review process and prepare CTA and Pace for the next phase of the study, the study team conducted a preliminary environmental screening for the proposed transit improvements within the project area. This environmental screening focuses on the elements included in the FTA's NEPA CE checklist, which would serve as the template for future environmental analysis. The checklist includes impacts to land-use, traffic, historic resources, noise and vibration levels, right-of-way, hazardous materials, social impacts, environmental justice, recreational resources, natural resources, endangered species, safety and security, and construction. The screening considers potential environmental impacts and mitigation strategies to minimize impacts to sensitive environmental resources.

The most sensitive issues regarding environmental impacts for the corridor include:

- Traffic Impacts The project would implement designated bus lanes and queue jumps within the South Halsted Corridor. To accommodate the bus lanes and queue jumps, geometric alterations to the roadway and intersections are proposed. This would include repurposing a travel lane or parking in certain areas. This would result in low to moderate impacts to traffic and parking. The exact placement of bus stations is still under consideration, but the final determination may have additional minor impacts to the general traffic and parking. Further traffic analysis would be required to gain approval from IDOT and CDOT.
- Historic Resources The project area is located within or adjacent to several designated or eligible National Register of Historic Places, National Historic Landmark, or Chicago Landmark properties. However, no impacts are anticipated. The project would not



significantly impact the visual quality, noise levels, or vibration levels near these resources due to the existing traffic and bus activity.

■ <u>Use of Public Parkland and Recreation Areas</u> – There are recreational areas and trails along the South Halsted Corridor within the project area. The most notable impact to these Section 4(f) properties occurs at 144<sup>th</sup> Street. Kickapoo Woods is a forest preserve located on the west side of South Halsted Street between 142nd Street and the Little Calumet River. The 144<sup>th</sup> Street southbound Pulse station footprint is proposed to be located on the edge of the preserve, which would require a permanent easement. The station is not anticipated to adversely affect any of the activities, features, or attributes associated with Kickapoo Woods and would likely result in a de minimis impact finding for this resource under Section 4(f).

These sensitive items were identified and flagged for further study as part of NEPA analysis in Phase 2. Other items that would require additional study in Phase 2 include confirming that there are no impacts to historic properties and the location and extent of any easements for stations footprints.

The environmental impacts of each alternative are similar in most cases. The primary difference between the alternatives would be that Alternative 1 would have the least impact on traffic, parking, and construction. Alternative 2 would have additional traffic and construction impacts from 129<sup>th</sup> Place to 154<sup>th</sup> Street as compared to Alternative 1. Similarly, Alternative 3 shares these impacts and would also have additional parking and construction impacts from 100<sup>th</sup> Street to 154<sup>th</sup> Street as compared to Alternative 2.

The complete screening is included in Appendix G: Environmental Screening

#### 4.2.6. Median Narrowing/Roadway Widening

As described in Section 4.1: Refined Corridor Improvement Alternatives, each of the proposed alternatives would require median narrowing and roadway widening in some locations north of 129<sup>th</sup> Place to accommodate queue jumps and bus lanes. South of 129<sup>th</sup> Place, the proposed improvements would not require median narrowing or roadway widening. Throughout the corridor, the impacts caused by queue jumps would be limited to areas adjacent to intersections.

The figures in this section regarding median narrowing and roadway widening requirements are based on GIS or other mapping. Field survey is required to confirm precise narrowing/widening requirements in the next phase. The greatest extent of median narrowing and roadway widening is proposed as part of Alternative 3 between 100<sup>th</sup> Street and 129<sup>th</sup> Place. In most cases, remaining medians widths would be sufficient for tree planting where planted medians currently



exist. In all cases, the remaining sidewalk width would be greater than the CDOT and IDOT required minimum widths. The IDOT Bureau of Design and Environment Manual specifies that urban sidewalks must be a minimum of four feet wide with a recommended buffer area (i.e. parkway) of two to three feet. In locations without a buffer, sidewalks should be seven feet wide. CDOT Street and site Plan Design Standards specifies that that the minimum sidewalk width is 6 feet, "clear of light poles, fire hydrants, and other street furniture." These changes are discussed in greater detail below.

For Alternative 3, the section from 100<sup>th</sup> Street to 129<sup>th</sup> Place requires median narrowing to provide 10-foot travel lanes and 11-foot bus lanes. Along 26 blocks in this section of the corridor, median narrowing is required, varying from one to six feet. Two locations require narrowing outside that range: 1) between 119<sup>th</sup> Street and 120<sup>th</sup> Street and 2) between the Metra Electric District Railroad Tracks and 122<sup>nd</sup> Street. These locations would require narrowing medians by 7.5 feet. Following construction, 22 of the medians along this section would be 7 feet wide or greater. Four medians would have a remaining width of 6.5 feet or less. Two medians with an existing width of five feet would be removed completely. Refer to Appendix K: Median Narrowing and Roadway Widening for additional details.

Many medians from 100<sup>th</sup> Street to 129<sup>th</sup> Place are planted with trees. This alternative requires some narrowing of medians, as described above. Columnar and decorative trees can safely grow in planters that are as narrow as 7 feet wide, preserving the look and feel of this section of the corridor. There are several varieties of columnar trees and decorative trees which have been specifically bred to ensure a narrow profile. Figure 4.10 shows an example of trees planted in an 8-foot-wide median as implemented as part of the HealthLine BRT in Cleveland, Ohio. Figure 4.11 shows several varieties of these narrow profile trees including the Columnar Ginkgo, Thornless Honeylocust, and Columnar Pin Oak. CDOT and IDOT typically recommend 10 feet as the minimum median width to accommodate street trees. Narrower medians may require a design exception.

<sup>&</sup>lt;sup>11</sup> IDOT Bureau of Design and Environment Manual. 58-1.06. <a href="http://www.idot.illinois.gov/Assets/uploads/files/Doing-Business/Manuals-Split/Design-And-Environment/BDE-Manual/Chapter%2058%20Special%20Design%20Elements.pdf">http://www.idot.illinois.gov/Assets/uploads/files/Doing-Business/Manuals-Split/Design-And-Environment/BDE-Manual/Chapter%2058%20Special%20Design%20Elements.pdf</a>

<sup>&</sup>lt;sup>12</sup> IDOT Bureau of Design and Environment Manual. 48-2.04. <a href="http://www.idot.illinois.gov/Assets/uploads/files/Doing-Business/Manuals-Split/Design-And-Environment/BDE-Manual/Chapter%2048%20Urban%20Highways%20and%20Streets.pdf">http://www.idot.illinois.gov/Assets/uploads/files/Doing-Business/Manuals-Split/Design-And-Environment/BDE-Manual/Chapter%2048%20Urban%20Highways%20and%20Streets.pdf</a>

<sup>&</sup>lt;sup>13</sup> CDOT Street and site Plan Design Standards. <a href="https://www.chicago.gov/dam/city/depts/cdot/StreetandSitePlanDesignStandards407.pdf">https://www.chicago.gov/dam/city/depts/cdot/StreetandSitePlanDesignStandards407.pdf</a>



FIGURE 4.10: NARROW MEDIAN STREET TREES, HEALTHLINE BRT, CLEVELAND, OHIO





FIGURE 4.11: COLUMNAR TREE VARIETIES: COLUMNAR GINKGO (LEFT), THORNLESS HONEYLOCUST (MIDDLE), COLUMNAR PIN OAK (RIGHT)







In addition to median narrowing, additional roadway widening impacting sidewalks and/or parkways would also be required in some locations. Alternatives 1 and 2 would require additional roadway widening of one to two feet of roadway in three locations. Two of these locations would require narrowing of the sidewalk; the third would require narrowing of the parkway. In all cases, the remaining sidewalk is greater than required IDOT and CDOT minimums. Alternative 3 would require additional widening, between one and three feet, at 40 locations. Alternative 3 would require the narrowing of only parkway in six locations, only sidewalk in 27 locations, and a mix of parkway and sidewalk in seven locations. In all cases where sidewalk is being affected, the remaining sidewalk and parkway width would be nine feet

<sup>&</sup>lt;sup>14</sup> Note: For the purposes of this analysis, a "location" is a single east or west side of a block on the corridor. As such, widening for a single intersection could require up to four locations, one for each corner of the intersection.



or greater, as compared to the CDOT and IDOT required minimum widths. In 23 of the 34 locations where sidewalk narrowing is required, the remaining sidewalk and parkway would be at least 11 feet wide. In general, widening is only required near intersections where the presence of a turn lane does not allow for any median narrowing. Appendix K: Median Narrowing and Roadway Widening provides additional detail regarding locations where median narrowing and roadway widening would be required for each alternative.

#### 4.2.7. Bus Bump Outs

A bump out, also called a bus bulb, is an extension of the sidewalk for a bus stop or station. Typically, the bump out replaces the roadway that would otherwise be part of a parking lane. Bump outs allow a bus to stay in its traffic lane to board and alight passengers rather than pulling over to the curb, thereby improving operating efficiency by limiting the need for the bus to merge in and out of traffic. However, any vehicles behind the bus must wait or change lanes to

FIGURE 4.12: BUS BUMP OUT AT TRANSIT STATION

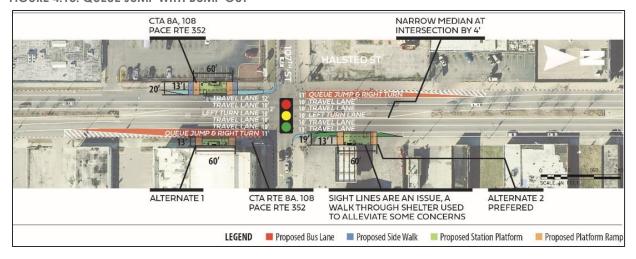


bypass the bus while customers are boarding and alighting. Figure 2.1 shows a bus stopped at a station with a bump out.

Bus bump outs would be most effective on sections of the corridor without bus lanes, since the bus would need to pull out of traffic to access the station. For segments with bus lanes, the bus is already travelling adjacent to the curb and does not need to merge back into general traffic. Figure 4.13 shows a sample of a bus bump out at 107<sup>th</sup> Street that could be implemented along with a queue jump. The primary drawback of bus bump outs on the South Halsted Corridor is that it limits the opportunity for more than one bus to board and alight at the same time, which is of concern due to the volume of service on the corridor. Bus bump outs are not included in the concept plans in Appendix A: Conceptual Corridor Improvement Plans or in the overall evaluation of alternatives, but should be considered as plans are further refined.



FIGURE 4.13: QUEUE JUMP WITH BUMP OUT



#### 4.3. STATION LOCATION CONCEPTS

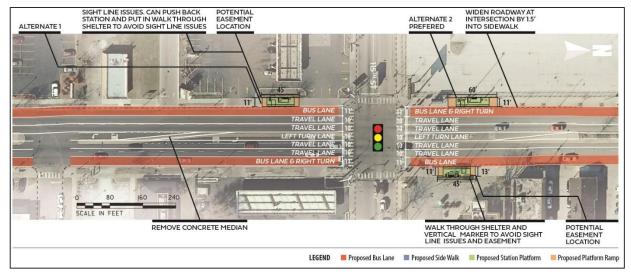
The South Halsted Corridor would feature limited-stop Pulse service with stations located approximately every half mile between the CTA Red Line 95<sup>th</sup> Street/Dan Ryan Station and the Pace Harvey Transportation Center. Local service would be maintained along the corridor by both Pace and CTA though frequencies may be adjusted. Separate northbound and southbound platforms would be required. For Screen 1, limited station locations were identified at key intersections based on ridership and walkshed considerations. For Screen 2, proposed station platform footprints were identified within the intersection or station area. Alternate station footprints have been shown for instances where multiple options should be considered in future project phases. Several factors were considered for station placement including ridership patterns, site constraints, safety concerns, sidewalk connections, proximity to other transit services, land use, transit signal priority benefits, impacts on adjacent property owners, and stakeholder input. These factors should continue to be taken into consideration as project development continues.

Well placed stations further enhance the efficiency of service and increase safety for riders. Ideally, stations would be placed on the far side of the intersections and allow convenient access to any nearby transit stops. Far side station placement gives buses the advantage of TSP by getting the bus through the signal before stopping to board passengers. At some locations, site constraints such as driveways, utilities, existing building access, and narrow right-of-way require further evaluation and will be refined during the advanced conceptual design phase based on-site constraints. Station locations are included in each set of conceptual plans included in Appendix A: Conceptual Corridor Improvement Plans. In general, station placement



would be decided independent of the roadway treatments noted above. Figure 4.14 shows a typical intersection along the corridor highlighting several alternate station locations for northbound and southbound stations.

FIGURE 4.14: TYPICAL STATION PLACEMENT



#### 4.4. RESULTS OF CAG MEETING NO. 3

Refined Alternatives 1, 2 and 3 as well as concept plans depicting station locations were presented to the CAG on February 14, 2019, for the South Halsted Bus Corridor Enhancement Project. Eleven CAG members were in attendance representing South Suburban communities, and partner agencies. The meeting recapped the items discussed at CAG meetings No. 1 and 2, described the refined corridor improvement alternatives, and provided information on station locations. Appendix C: CAG Meeting 3 Summary provides detailed meeting notes. Below are comments and recommendations received for the refined alternatives and station locations.

#### 4.4.1. Comments/Recommendations for Refined Alternatives

Overall, the CAG members were in support of Alternative 3 which would maximize the transit improvements and opportunities for economic development in the corridor. There was also support for 24-hour bus lanes based on the significant number of off-peak riders who may use the bus routes.

Additional comments were received regarding the roadway treatments. There was some concern regarding a reduction to 10' lanes and if they are wide enough to accommodate motor vehicles. Members recognized the need to narrow medians. CAG members also noted concern



regarding the need for enforcement mechanisms for the bus lanes, including ways to deter drivers from driving in bus-only lanes. Other comments related to the importance of a high-quality pedestrian environment, community and business outreach, and IDOT coordination in the next phase of the project.

#### 4.4.2. Comments/Recommendations for Station Locations

CAG members provided several specific comments regarding station locations. A member requested that CTA and Pace review the inclusion at a Pulse stop at 134<sup>th</sup> Street, where two trailheads for the Major Taylor Trail are located. Members also pointed out the need to identify bus stations that may have a significant number of riders and may require a larger station, e.g. 147<sup>th</sup> Street/Sibley Avenue. An importance was placed on locating stations close to new developments. Members also noted the importance of considering safety in station siting.



### 5. Recommended Alternatives

Based on the screening analysis and feedback from the CAG, the study team, CTA, and Pace recommend advancing the bus lane alternatives (Alternatives 2 and 3) to the next phase of planning. The following section provides additional details regarding this recommendation and the related bus enhancements.

#### 5.1. RECOMMENDED CORRIDOR IMPROVEMENTS

The analysis conducted as part of this phase of the study and feedback from the CAG has demonstrated that bus lanes are feasible for the South Halsted Corridor. Alternative 2 and 3 represent the lesser and greater extent, respectively, that bus lanes would be implemented in the corridor as part of this project. However, additional study and public outreach is recommended to confirm the extent to which bus lanes are preferred from 100<sup>th</sup> Street to 129<sup>th</sup> Place, on either the entirety of this section of the corridor or along some subsections. In particular, because at least some roadway widening is anticipated in this section, a detailed survey is required to know precise roadway dimensions which would allow for a more accurate assessment of the impacts and potential tradeoffs with respect to implementing bus lanes, which could include impacts to one or more of the following: parking, traffic/turn lanes, medians, sidewalks, and parkways. Local stakeholders and the public should have an opportunity for comment on these tradeoffs before a Locally Preferred Alternative is selected.

The study team recommends that any curbside bus lanes be reserved for buses and right turning vehicles 24 hours per day, rather than peak hours only which was also considered. While the highest average hourly ridership occurs during the peak hours, as shown in Figure 5.1, there is also significant off-peak ridership. While 44% of transit trips occur during the peak, over half of the trips are taken during off peak periods. Demand continues to be especially high during the midday, such that hourly midday demand is about 75% of peak demand. Based on average daily boardings, approximately 40% of the people on the South Halsted Corridor are making their trips on buses during the AM and PM peak periods, meaning that 60% of trips occur at other times of the day. Therefore, 24-hour bus lanes are recommended.



Average Hourly Ridership by Time of Day 1,000 900 800 700 600 500 400 300 200 100 AM Peak Midday PM Peak Evening Late Night/Owl (6 - 9am)(9am - 3pm) (6 - 10pm) (10pm - 6am) (3 - 6pm)

FIGURE 5.1: PEAK VS. OFF-PEAK RIDERSHIP (ROUTES 8A, 108, 352, 359; OCTOBER 2017)

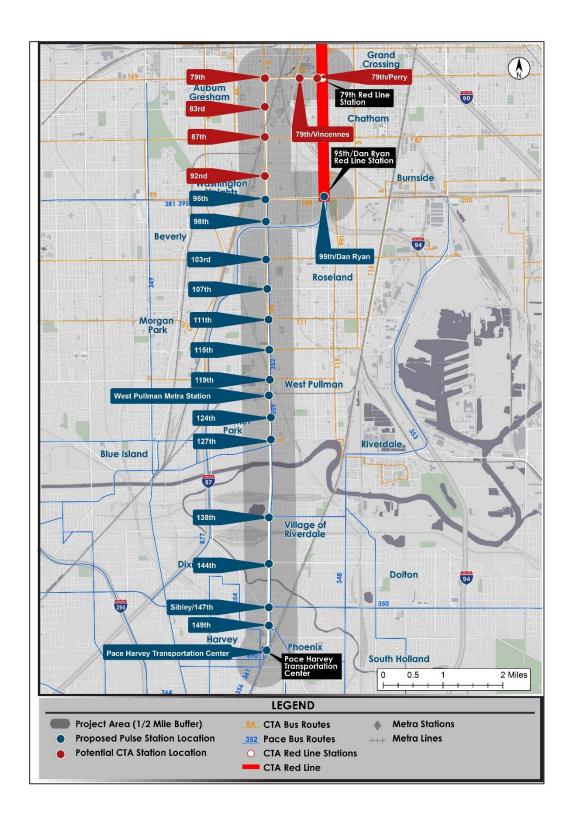
Source: CTA and Pace

#### 5.2. BUS STATION LOCATIONS

The South Halsted Corridor project would implement upgraded bus stations throughout the length of the corridor, as shown in Figure 5.2. Upgraded bus service would serve 22 station areas along the corridor, including existing bus terminals at the Pace Harvey Transportation Center, CTA 95<sup>th</sup> Red Line Terminal, Halsted Street & 79<sup>th</sup> Street Terminal, and 79<sup>th</sup> Street & Perry Avenue bus turn around. This would include 6 station areas served by only CTA, 6 served by only Pace, and 10 served by both agencies. Station areas would generally consist of a station for each direction, though there would be some variation, as described in Table 5.1. In the shared section of the corridor between the 95<sup>th</sup> Street Red Line Station and 129<sup>th</sup> Place, Pace Pulse stations would be constructed and maintained by Pace and served by both Pace and CTA buses. North of 95<sup>th</sup> Street and east of Hasted along 79<sup>th</sup> Street, CTA would install its own upgraded stations and retain local stops, as noted in the table. South of 127<sup>th</sup> Street, Pace would also install Pulse stations, which would only be served by Pace buses.

**FIGURE 5.2: STATION LOCATIONS** 







#### **TABLE 5.1: STATION CHARACTERISTICS**

Station Areas	Stations	Agency Providing Service to this Location
79th & Perry	1 station (turnaround) and 1 platform (Perry)	CTA only
79 <sup>th</sup> & Vincennes	1 station (WB) and retain local stop (EB)	CTA only
79th & Halsted	None, use 79 <sup>th</sup> Bus Terminal	CTA only
83 <sup>rd</sup> & Halsted	2	CTA only
87 <sup>th</sup> & Halsted	2	CTA only
92 <sup>nd</sup> & Halsted	1 station (SB) and 1 platform-only (NB)	CTA only
95 <sup>th</sup> & Halsted	2	CTA & Pace
95th & Dan Ryan	None, use existing transit center	CTA & Pace
98th & Halsted	2	CTA & Pace
103 <sup>rd</sup> & Halsted	2	CTA & Pace
107th & Halsted	2	CTA & Pace
111th & Halsted	2	CTA & Pace
115 <sup>th</sup> & Halsted	2	CTA & Pace
119 <sup>th</sup> & Halsted	2	CTA & Pace
West Pullman Metra Station	2	CTA & Pace
124th & Halsted	2	CTA & Pace
127th & Halsted	2	Pace only, due to CTA operations
138th & Halsted	2	Pace only
144 <sup>th</sup> & Halsted	2	Pace only
147th/Sibley & Halsted	2	Pace only
149th & Halsted	2	Pace only
Pace Harvey Transportation Center	None, use existing transit center	Pace only



#### 5.3. STATION AMENITIES

Bus stations along the segment of the corridor where Pace would operate Pulse service, from the 95<sup>th</sup> Street Red Line Station to the Harvey Transportation Center, would feature upgraded Pulse stations. These stations would be like Pulse stations designed for the Pulse Milwaukee and Dempster Lines. As shown in Figure 5.3, these upgraded Pulse shelters feature infrared heating, seating, bicycle racks, trash receptacles, pavement snowmelt system, and a 15' vertical marker with real time and static information displays. In some cases, based on the availability of space and a maintenance agreement with the local municipality, updated landscaping design to match the local community may also be included. Some station features can be further customized based on community input. Stations would generally be 60 feet long and at least 8 feet deep. Where required, stations could be reduced to 45 feet long. Where the station or its vertical marker is expected to block traffic sight lines, "walk-through" stations can be considered.





Stations would also feature near-level boarding. Near-level boarding speeds up the boarding process, especially for disabled, elderly, or other passengers with limited mobility who may have otherwise require the bus to extend a ramp or use its suspension system to lower its height. Pace is pursuing a standard of 12-inch near-level boarding platforms at Pulse stations, based on the floor heights of Pace vehicles. CTA utilizes 11-inch near-level boarding platforms at their Loop Link stations. At shared stations, an 11-inch curb should be used to accommodate both fleets. Concrete bus pads would be installed at stations to maximize the life of the roadway in



front of the station, where buses would stop frequently and increase wear and tear on the roadway.

CTA-only stations would feature some but not all the amenities described above. Due to site constraints, the northbound station located at 92<sup>nd</sup> Street would only be a platform rather than a full shelter. Additional planning and design would be required to confirm what amenities would be provided.

Upgrades are needed at the existing CTA bus turnaround at Halsted Street and 79<sup>th</sup> Street to provide an improved customer experience, which should be included in the South Halsted Bus Enhancement Project. Some of the needed improvements include making the station ADA compliant, upgrading pedestrian accommodations by connecting sidewalks to the bus platform, concrete repair/replacement, and electrical upgrades.

Concept plans showing the locations of the proposed stations are included in Appendix A: Conceptual Corridor Improvement Plans.

#### 5.4. EASEMENTS

Most of the transit and station improvements for the South Halsted Corridor would be constructed within the existing right of way (ROW). However, in ten locations along the corridor the proposed improvement may extend beyond the existing right of way. These easements are all "sliver" takes which are not anticipated to negatively impact the ability of the owner to continue to use the property for its intended use. Nonetheless, to implement the design as planned, CTA and Pace would require an easement to obtain rights to use the proposed land. This would involve an agreement with the property owner. It is also important to note that this assessment is based on GIS data rather than a field survey, which would be required in a future phase to confirm final easement requirements.

Table 5.2 includes the list of potential locations along the corridor where an easement may be required based on available GIS data. All easements are related to station improvements and each would be required regardless of the roadway improvement alternatives. Avoiding an easement, however, may be possible at select locations. At stations where the electrical cabinet is the only item outside of the ROW, relocating the electrical cabinet onto the platform instead may be possible. Additional easements for utility runs may be required at Pulse stations due to the energy needed to power station heaters and pavement snowmelt systems. At stations where the platform is pushed back outside of the ROW, to keep the bus shelter out of sight lines, a walk-through shelter could be used to limit or eliminate the need for an easement.



Where the vertical marker is also pushed back to avoid sight lines, the marker could be moved to the other side of the platform to attempt to avoid sight lines.

**TABLE 5.2: POTENTIAL EASEMENT LOCATIONS** 

Intersection Location	Locations Where Easements Are Needed	Distance from ROW Line (ft)	Sidewalk is part of ROW?	Type of land impacted	Notes
87th Street	NE stations (Alt 2)	13	No	Grass and sidewalk	
98th Street	NW Station	7.5	Mostly	Grass and Sidewalk	Bus shelter in sight lines
98th Street	SE station	5	Partially	Sidewalk	
115 <sup>th</sup> Street	SW station	2	Yes	Planter/fence-Citgo	Electrical cabinet is only part of station outside the ROW
124th Street	SW station	3.5	Yes	Gravel residential parking lot	
138th Street	NE station	2.5	Yes	Parking lot-Grand Coffee Shop	Bus shelter and vertical marker in sight lines
144 <sup>th</sup> Street	SW station	9	N/A	Grass area Kickapoo Woods	
144 <sup>th</sup> Street	NE station	9	No	Grass area and sidewalk- Pamasco	
147 <sup>th</sup> Street/ Sibley Blvd	SE (Alt 1) station	0.33	Yes	Grass area- Cash America Jewelry & Loan	
79th Street & Vincennes Ave	NE station	1	Yes	Gravel in parking lot of CTA 79 <sup>th</sup> Street Bus Garage facility	Electrical cabinet is only part of station outside ROW

#### 5.5. ACCESS CONSIDERATIONS

At some intersection locations, the roadway is proposed to be widened or the median removed to accommodate bus lanes or queue jumps. At intersections where the roadway is widened, this would increase the distance that pedestrians need to walk to get across the street and would require a longer pedestrian cycle time.

Several proposed stations in the southern areas of the corridor currently lack sidewalk access including at 144<sup>th</sup> Street and 149<sup>th</sup> Street. Gaps in sidewalk connectivity should be filled, particularly to ensure a safe connection to adjacent crosswalks. Additional upgrades to crosswalks may also be recommended. All sidewalk upgrades will be designed to meet ADA standards.



Due to their height, the bus shelter and the vertical marker for each station have the potential to partially block the sight lines, which allow drivers to adequately see oncoming traffic and pedestrians. In siting potential locations for bus stations, the study considered the sight lines for turning vehicles, including those exiting parking lots and other driveways. Though station placement aimed to minimize sight line issues, sight line issues remain at select station locations. For these, the shelter may be converted to a walk-through shelter to alleviate some of the sight line issues. However, not all stations are able to fully avoid affecting the sight lines. Moving forward, the project's design should follow all engineering best practices and IDOT design criteria. However, some stations may require design exceptions and coordination with IDOT or larger easements.

#### 5.6. SAFETY

As noted in the *Existing Conditions and Needs & Deficiencies Report,* no part of the corridor was identified by the City of Chicago as a high crash corridor or high crash area in the Vision Zero Framework Plan, released in June 2017. However, IDOT would require more detailed analysis of crashes in the corridor, especially at any 5% locations, as designated by IDOT. 5% locations are locations along state highways that are identified as within the top 5% of locations statewide with the greatest potential for safety improvement, based on crash severity and frequency. A map of these locations is shown in Appendix H: IDOT 5% Locations.

#### 5.7. PLANNING LEVEL COST ESTIMATES

#### 5.7.1. Methodology

Costs were calculated using approximate dimensions provided in conceptual drawings of each alternative and block lengths measured in Google Earth. Unit prices are based on previously prepared cost estimates for similar projects, such as the CTA's Jeffery Bus Rapid Transit project (2012), CDOT's Walk to Transit project (2014), CDOT's Grand Ave. project (2016), and IDOT unit pricing. Costs have been escalated to FY2023 dollars, the estimated year for construction, using the US Bureau of Economic Analysis (BEA) Consumer Price Index (CPI).

Proposed changes for each of the three alternatives were categorized into the following categories:

<sup>&</sup>lt;sup>15</sup> CDOT, Vision Zero Chicago, High Crash Corridor Framework Plan, June 2018. <a href="http://visionzerochicago.org/wp-content/uploads/2018/06/VZ">http://visionzerochicago.org/wp-content/uploads/2018/06/VZ</a> HCC FrameworkPlan 2018-06-15.pdf



- <u>Civil:</u> This includes proposed changes relating to roadway work, such as median and curb removal, and new pavement markings. Roadway resurfacing and pavement improvements for all alternatives is assumed to be a separate cost.
- <u>Traffic Signal Installation:</u> This includes the traffic pre-signals and other equipment necessary for queue jumps at signalized intersections. TSP was not included as part of the cost estimate, as this is expected to be performed via a separate RTA contract. However, coordination of queue jump and TSP signal upgrades may provide for equipment and installation cost savings.
- Stations/Facilities: This includes the costs for CTA stations, Pace Pulse stations, a CTA bus turnaround, shared CTA/Pace station terminals, as well as costs associated with ITS to provide relevant travel time information to passengers at bus stops and stations. These stations/facilities are anticipated to be included in all alternatives.
- <u>Lighting</u>: This includes the removal and relocation of light poles and foundations due to changes in the geometry of the proposed roadway. Lighting improvements are assumed to be included in alternatives where roadway is widened. For queue jumps, this widened area is assumed to be within 150 feet of the intersection.

A detailed breakdown of these categories is found in Appendix I: Cost Estimate.

#### 5.7.2. Summary of Results

The proposed changes between 79<sup>th</sup> Street to 98<sup>th</sup> Street are identical between all three alternatives, and therefore incur the same costs through these sections. Alternative 1 involves the least amount of roadway work when compared to the other alternatives due to the proposed queue jumps south of 129<sup>th</sup> Place instead of the bus lanes proposed in Alternatives 2 and 3. In Alternative 2 and 3, the cost increases due to the additional work required to install bus lanes on large portions of South Halsted Street. Alternative 3 incorporates bus lanes along South Halsted Street from 98<sup>th</sup> Street to the terminus of the corridor at the Pace Harvey Transportation Center at 154<sup>th</sup> Street. Bus lanes would require pavement markings if implemented as part of Alternative 2 or 3. Bus lanes could also include colorized pavement to more clearly designate the lanes, which has been included as an option in the cost estimate. As described in Section 4.2.6: Median Narrowing/Roadway Widening, Alternative 3 would require additional median narrowing and roadway widening between 100<sup>th</sup> Street and 129<sup>th</sup> Place beyond what is required for Alterative 1 and 2.

Table 5.3 includes the total costs for each alternative. Construction costs include civil work, traffic signal installation, stations/facilities, and lighting improvements. In addition to these construction costs, other costs related to preliminary engineering, final design, project and



construction management, insurance and permits, survey, and contingency are also shown. These additional professional services and contingency costs calculated are based on percentages of the total construction costs. These percentages are in line with best practices for a project at this phase of development. A separate cost is also included for pavement resurfacing including colorized bus lanes.

TABLE 5.3: SOUTH HALSTED CORRIDOR COST SUMMARY BY ALTERNATIVE (FY 2023)

Item	Alt 1	Alt 2	Alt 3
Construction Costs	\$22,382,775	\$22,727,314	\$30,325,769
Soft Costs	\$17,234,737	\$17,500,032	\$23,350,842
Total (without Pavement Resurfacing)	\$39,617,511	\$40,227,346	\$53,676,611
Pavement Resurfacing without Colorization – Total including soft costs	\$10,580,813	\$10,580,813	\$10,580,813
Pavement Colorization – Total including soft costs	\$1,347,855	\$4,181,873	\$6,979,889
Total (with Pavement Resurfacing including Colorization)	\$51,546,180	\$54,990,032	\$71,237,313

Additional details regarding these costs is included in Appendix I: Cost Estimate.



## 6. Operating Plan

Upgraded roadway treatments and stations in the South Halsted corridor would be complemented by the introduction of new Pulse service operated by Pace. CTA and Pace would also continue to operate local service on the corridor, though some changes would occur to the headways of local service. The travel time savings achieved by the roadway treatments would provide costs savings for all services on South Halsted. Additional time savings would be achieved through TSP and stop consolidation.

#### 6.1. ROUTING & LIMITED STOP SERVICE

CTA is currently evaluating proposals for restructuring service for Route 8, Route 8A, and Route 108, including expanded service hours. Changes to the routes are likely to be proposed, but public input is needed. Pending public outreach, CTA service patterns would remain unchanged. Route 8A would still provide service between 79<sup>th</sup> Street & Perry Avenue, near the 79<sup>th</sup> Street Red Line station, and Halsted Street & 127<sup>th</sup> Street. Similarly, Route 108 would provide service to the 95<sup>th</sup> Street Red Line station. Both routes would still serve existing local bus stops. Express or limited-stop service would not be provided for either route. Additional details regarding concepts to reschedule these routes is included in Appendix J: Bus Operation.

Pace is pursuing limited-stop service as part of the Pulse program for the South Halsted Corridor between the Pace Harvey Transportation Center and the 95<sup>th</sup> Street Red Line Station. Service is proposed as follows:

- Ten (10) minute peak headways (three morning and three afternoon hours)
- 15-minute off-peak headways (most of the day)
- 30-minute off-peak headways (three late night hours)
- Service span of 20 hours per day

With the implementation of Pulse service, Pace anticipates that current Route 352 service would be reduced for trips between the Pace Harvey Transportation Center and the 95<sup>th</sup> Street Red Line Station. Frequencies would likely be reduced throughout the day in this segment. Route 352 service would likely be improved between Chicago Heights and the Pace Harvey Transportation Center. Route 352 would continue to operate 24-hour service between the Pace Harvey Transportation Center and the 95<sup>th</sup> Red Line Station.



Any service reductions would be subject to public hearing based on Title VI requirements.

#### 6.2. OPERATING COSTS

The project would introduce Pulse service to the corridor. CTA would continue its current operations in the near term. Table 6.1 shows the expected changes to Pace daily service hours and costs. The table uses \$93.15 per service hour as an estimate for the cost of operations in 2023, the expected first full year of revenue service. The implementation of this updated service plan would require approximately \$3.7 million per year in annual operating costs.

TABLE 6.1: CURRENT AND PROPOSED PACE ANNUAL HOURS AND COSTS

Туре	Route	Day	Hours per day	Days per year	Annualized Gross Cost (2023 Dollars)	Total Annualized Gross Cost	Difference in 2023
		Weekday	208.02	255	\$4,941,151.07	\$6,492,685.41	
Current	Route 352	Saturday	163.68	52	\$792,833.18		
		Sunday	140.43	58	\$758,701.16		
	Route 352 (Local)	Weekday	201.58	255	\$4,788,180.14	\$10,230,143.79	\$3,737,458.38
		Saturday	128.53	52	\$622,573.61		
Proposed		Sunday	114.37	58	\$617,906.80		
Proposed		Weekday	130.77	255	\$3,106,212.50		
	South Halsted Pulse	Saturday	109.75	52	\$531,607.05		
	T disc	Sunday	104.33	58	\$563,663.69		

While the Pulse Halsted Line would be the only new service introduced to the corridor, local service operating on the corridor would experience operating costs savings through shorter travel times. This would result because the same bus would require fewer operating hours to complete each trip. Operating hours would decrease for CTA Route 8A, CTA Route 108, and Pace Route 352, as shown in Table 6.2. For this local service, since buses would still make all local stops, travel time savings would only be realized through roadways improvements, i.e., queue jumps, dedicated lanes, TSP, and signal optimization. Pace Route 359 is also expected to see similar improvement for the section it operates along the corridor. In addition, the number of trips on the Pace Route 352 between the Pace Harvey Transportation Center and the 95<sup>th</sup> Red Line station would be reduced by approximately 46% from 1,234 trips to 672 trips. Frequencies south of the Pace Harvey Transportation Center are not expected to be reduced.





#### **TABLE 6.2: LOCAL SERVICE OPERATING SAVINGS**

	8A	108	352
Current Travel Time (min)	40.3	23.7	39.1
Updated Travel Time (min)	35.8	20.1	32.4
Percent Savings	11%	15%	17%



### 7. Implementation Strategy

As the project development phase continues, it is important to outline the additional steps required to complete the project in a timely and cost-effective manner. The next phase of the project requires additional environmental analysis and concept design. The following section outlines a proposed timeline for implementation, the expected level of environmental documentation, and potential funding sources.

#### 7.1. PROJECT TIMELINE

Figure 7.1 provides a proposed schedule for implementation including environmental review, design, and construction, subject to funding availability.

FIGURE 7.1: PROPOSED SCHEDULE



#### 7.2. EXPECTED LEVEL OF ENVIRONMENTAL ANALYSIS

Due to the project's implementation along a well-established urban transportation corridor, a Categorical Exclusion is the anticipated level of environmental analysis required for this project to move forward. On July 22, 2019, a NEPA Class of Action Determination Memorandum was provided by CTA and Pace to FTA providing evidence for this justification.

The South Halsted Corridor Enhancement Project would improve service along the South Halsted Corridor utilizing bus lanes, queue jumps, and enhanced stations. Construction would take place primarily within the existing right-of-way. To accommodate the bus lanes and queue jumps, geometric alterations to the roadway and intersections would be required. This would include conversion of a travel lane or parking in certain areas. Minimal additional permanent right-of-way would be required. Several permanent easements in the form of "sliver" takes are anticipated. One such take would be required adjacent to a park area. As no change in use is expected, a de minimis impact is anticipated. Nonetheless, Section 4(f) documentation would be required. No relocations would be required.

There would be minimal impacts related to the other aspects required for environmental review. There are several potential historic resources identified along the South Halsted Corridor which



will be documented in future phases, but no impacts are anticipated. The project would not significantly impact the visual quality, noise levels, or vibration levels due to the existing traffic and bus activity. There is no known hazardous contamination within the project area. There is a high percentage of minority and low-income populations living within the study area, and a project goal is to support the underserved communities in the area. Land-use along this section of South Halsted Street has traditionally been used for industrial, commercial, business, and residential properties. No impacts to wetlands, floodplains, waterways, or endangered and threatened species is anticipated. The project would employ standard safety practices and all construction impacts would be minimized to the greatest extent possible. Overall, the project would be limited to minor impacts in the project area; no significant impacts are anticipated to occur.

As per 40 CFR 1508.4, Categorical Exclusions (CEs) "means a category of actions which do not individually or cumulatively have a significant effect on the human environment and which have been found to have no such effect in procedures adopted by a Federal agency." Therefore, neither an environmental assessment nor an environmental impact statement is required. 23 CFR 771.118 further clarifies environmental documentation requirements for CE documents, including the action that FTA determines are appropriate for a CE. Three of those items pertain to the South Halsted Corridor Project, as follows:

- Section 771.118(c)(8): Maintenance, rehabilitation, and reconstruction of facilities that occupy substantially the same geographic footprint and do not result in a change in functional use, such as: Improvements to bridges, tunnels, storage yards, buildings, stations, and terminals; construction of platform extensions, passing track, and retaining walls; and improvements to tracks and railbeds.
- Section 771.118(c)(9): Assembly or construction of facilities that is consistent with existing land use and zoning requirements (including floodplain regulations) and uses primarily land disturbed for transportation use, such as: Buildings and associated structures; bus transfer stations or intermodal centers; busways and streetcar lines or other transit investments within areas of the right-of-way occupied by the physical footprint of the existing facility or otherwise maintained or used for transportation operations; and parking facilities.
- Section 771.118(c)(12): Projects, as defined in 23 U.S.C. 101, that would take place entirely within the existing operational right-of-way. Existing operational right-of-way means all real property interests acquired for the construction, operation, or mitigation of a project. This area includes the features associated with the physical footprint of the project including but not limited to the roadway, bridges, interchanges, culverts, drainage, clear zone, traffic control signage, landscaping, and any rest areas with direct access to a controlled access



highway. This also includes fixed guideways, mitigation areas, areas maintained or used for safety and security of a transportation facility, parking facilities with direct access to an existing transportation facility, transportation power substations, transportation venting structures, and transportation maintenance facilities.

Based on this classification, the preparation of an EIS or EA does not appear to be warranted for the South Halsted Project, and the project team's recommended course of action would be to request from FTA that a CE document be prepared to meet the environmental documentation requirements. A CE document would provide for a means to conduct detailed analysis where required, including traffic, parking, and pedestrian impacts while streamlining areas where no significant analysis is expected to be required (e.g. ecological, navigable waterways, etc.). CTA and Pace will continue to conduct public outreach to ensure that local stakeholders, residents, and businesses are well informed about the project's goals, schedule, benefits, and impacts.

#### 7.3. POTENTIAL FUNDING SOURCES

The South Halsted Bus Enhancement Project, like may transit projects, would likely need multiple sources of funding to provide all the necessary improvements. This section presents potential funding sources to implement the improvements recommended in this report. Each funding source has its own criteria for applicable projects, application cycles, and requirements for applying. The final package of funding would likely include a combination of local, state, and federal funding.

ON TO 2050, the regional comprehensive plan developed by CMAP, has identified this project as a fiscally-constrained Regionally Significant Project (RSP 108) due to the project's benefits of reducing air emissions, increasing transit ridership, increasing job access, and benefitting communities on the South Side of Chicago and Cook County. This project is also a potential candidate for FTA Small Starts funding, and it is recommended that an application for Small Starts funding be submitted to FTA.

The following summarize potential funding grants.

#### 7.3.1. Invest in Cook Grants

Invest in Cook is a relatively new grant program initiated in 2017 by Cook County and programmed by the Cook County Department of Transportation and Highways. Cook County dedicates \$8.5 million annually from its local portion of the state Motor Fuel Tax (MFT) revenue to implement the goals and objectives outlined in its Long-Range Transportation Plan (LRTP). While a modest amount of funding is available each year, it is one of the more flexible sources of grant funding in that it can fund planning and feasibility studies, engineering, right-of-way



acquisition, and construction. As a local, non-federal funding source, Invest in Cook grants can also serve as local match to any federal grant awards received on the project.

Pace has already received a \$500,000 Invest in Cook grant in 2017 that will be used in 2019 and 2020 to complete environmental documentation for the project required by the National Environmental Protection Act (NEPA). CTA and Pace would contribute to local matching funds of \$100,000 for this grant. This project could be eligible for further Invest in Cook grant funding after the \$500,000 funding has been spent. The Invest in Cook grant call for projects typically opens in early January of each year.

#### 7.3.2. Congestion Mitigation and Air Quality Improvement Program

The Congestion Mitigation and Air Quality Improvement (CMAQ) program is a federal funding source through the Federal Highway Administration (FHWA) and programmed by CMAP. CMAQ funds are used to fund transportation projects that improve air quality and mitigate congestion. This project is a candidate for CMAQ funding as it improves air quality and mitigates congestion by increasing transit ridership and improving travel time reliability, thereby reducing the number of Single-Occupancy Vehicles and decreasing congestion on the transportation network. Pace applied for CMAQ funding in the most recent call for projects that closed in March 2019.

Each region that receives CMAQ funding programs their funds using different evaluation criteria. In the Chicago region, CMAP scores transit projects based on expected ridership increase, travel time reliability, existing asset condition (applicable to transit facility projects), and the presence of transit-supportive land uses. The CMAQ funding cycle opens with a call for projects in January of each year.

#### 7.3.3. Surface Transportation Program Shared Fund Program

The Surface Transportation Program (STP) Shared Fund program is a recent program initiated in 2019 by CMAP amounting to \$40 million annually. This funding source allocates a portion of federal STP dollars from FHWA to fund important regional projects that further the goals of the regional comprehensive plan, ON TO 2050. Eligible projects must either be a multijurisdictional application or the total project cost is \$5 million or more. Pace applied for Shared Use STP funds in the call for projects that closed in March 2019.

Projects are evaluated in three categories: project readiness, transportation impact, and planning factors. For transit projects, the planning factors considered include inclusive growth, complete streets, and transit supportive density. The STP Shared Fund funding cycle opens with a call for projects in January of each year.



#### 7.3.4. FTA Small Starts Program

The FTA Small Starts program is a discretionary grant program where projects are either new fixed guideway projects, extensions to existing fixed guideway systems, or corridor-based bus rapid transit projects. Eligible projects have cost requirements where the project must be under \$300 million and Small Starts funding must be less than \$100 million. The first step to begin the Small Starts process is to enter the Project Development phase where project sponsors can complete the environmental review process, select a Locally Preferred Alternative, gather funding commitments, and make progress on engineering and design. Work completed while in the Project Development phase can be counted toward local match. It is critical to get this approval early in the planning phase. From there, FTA evaluates the project and assigns a rating. If approved and recommended for funding by the FTA, the project can enter into a construction grant agreement between FTA and the Project Sponsor.

Because the corridor has sufficient ridership, travel-demand modeling may not be necessary. Instead, "warrants" could be used to achieve automatic medium ratings on some of the evaluation criteria. A modeling vs. warrants approach should be further explored. Modeling is beneficial when the results would provide for a higher rating.

Many elements are needed to enter a Small Starts application. However, a key element is the financial plan. A higher rating is assigned to projects that require less than 50% of FTA's Capital Improvement Grant. As this grant process is competitive nationally, it is critical to develop a strategy for the project that achieves the highest potential rating.





## **Appendices List**

- 1. Appendix A: Conceptual Corridor Improvement Plans
- 2. Appendix B: CAG Meeting 2 Summary
- 3. Appendix C: CAG Meeting 3 Summary
- 4. Appendix D: Traffic Analysis
- 5. Appendix E: Parking Inventory
- 6. Appendix F: Bus Speed
- 7. Appendix G: Environmental Screening
- 8. Appendix H: IDOT 5% Locations
- 9. Appendix I: Cost Estimate
- 10. Appendix J: Bus Operations
- 11. Appendix K: Median Narrowing and Roadway Widening

PROJECT LOCATED IN THE 1. CITY OF CHICAGO 2. VILLAGE OF RIVERDALE 3. CITY OF HARVEY

> DRAFT SUBMITTAL SEPTEMBER 27,2019

#### **INDEX OF SHEETS**

1 COVER SHEET
2 - 31 ALTERNATE 1
32 - 61 ALTERNATE 2
62 - 91 ALTERNATE 3

# DRAFT FOR REVIEW



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

# CHICAGO TRANSIT AUTHORITY AND PACE SUBURBAN BUS

# CONCEPTUAL CORRIDOR IMPROVEMENT PLANS

SOUTH HALSTED BUS CORRIDOR ENHANCEMENT PROJECT

BUS LANES, STATIONS, SIDEWALK
COOK COUNTY



LOCATION MAP

GROSS LENGTH = 11.8 MILES

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125 SOUTH WACKER DRIVE SUITE 700 CHICAGO, IL 60606 (312) 346-5000 ILLINOIS PROFESSIONAL DESIGN FIRM







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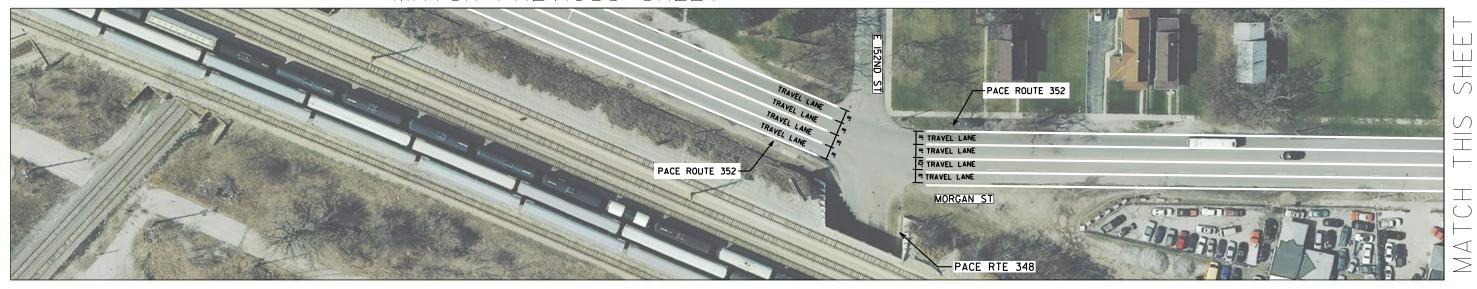
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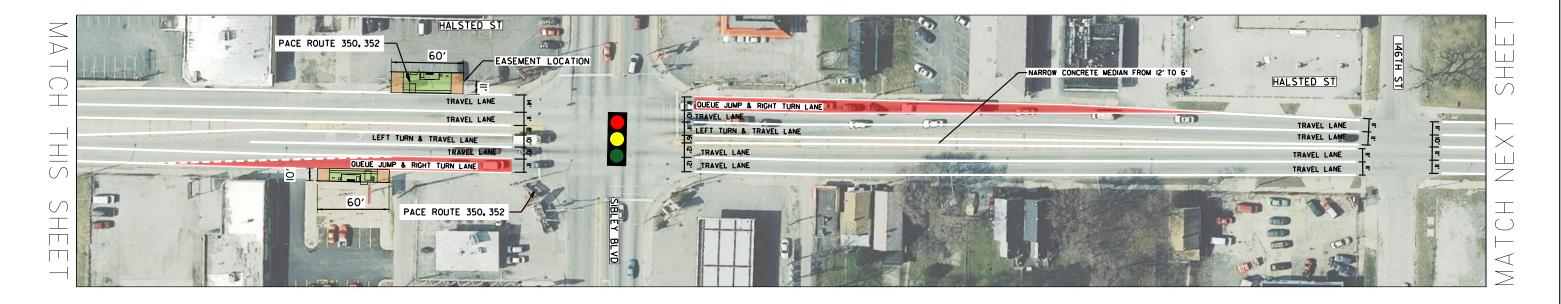
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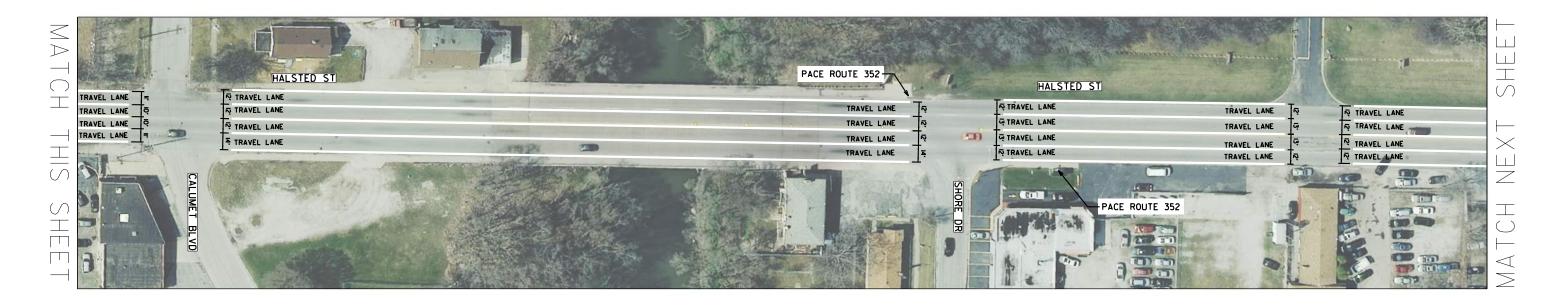
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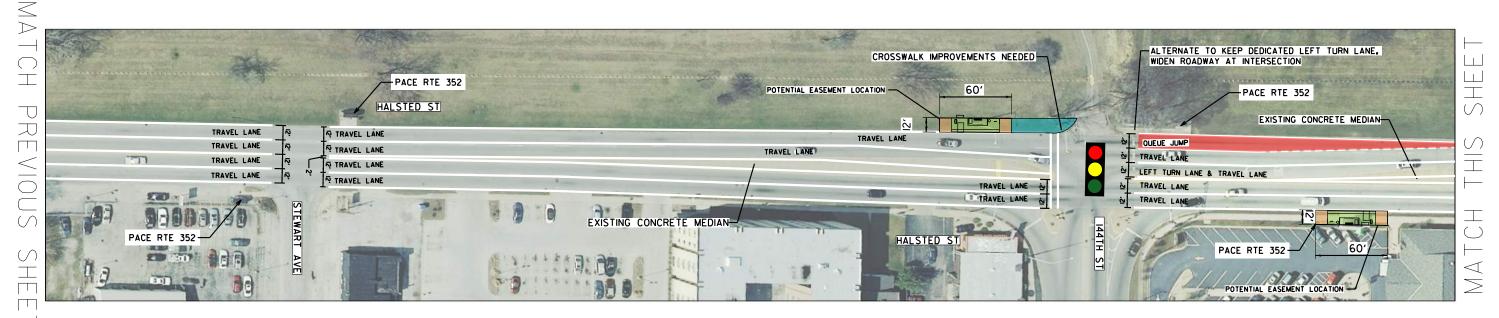
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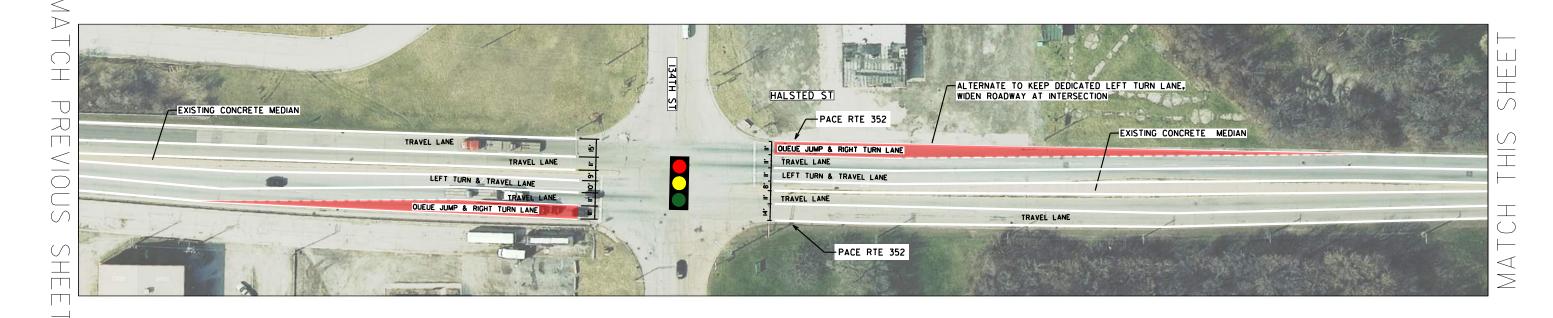
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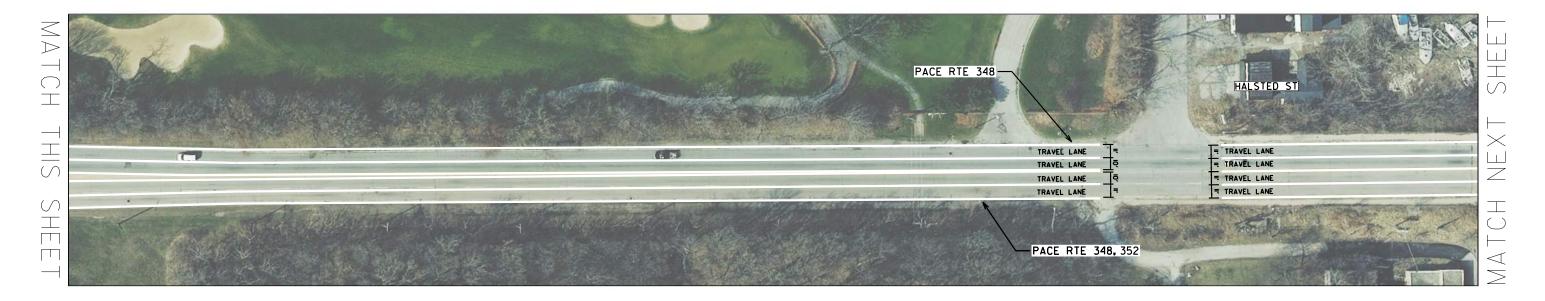
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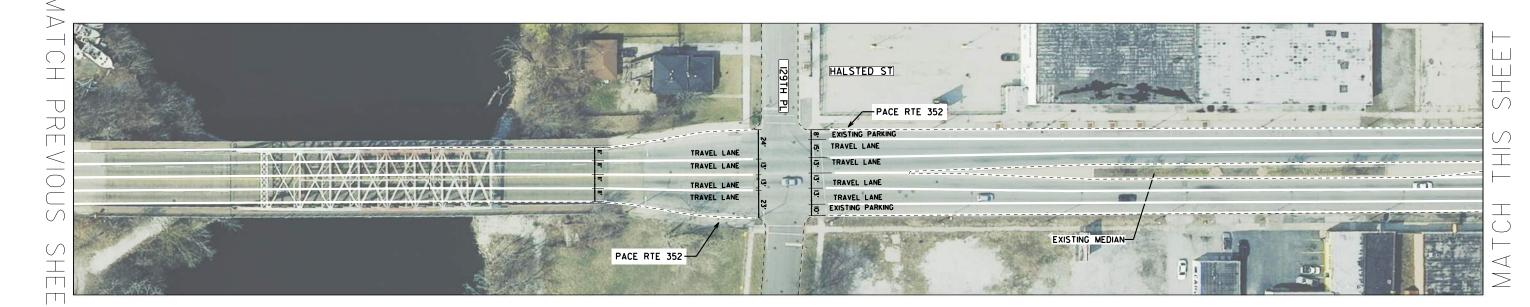
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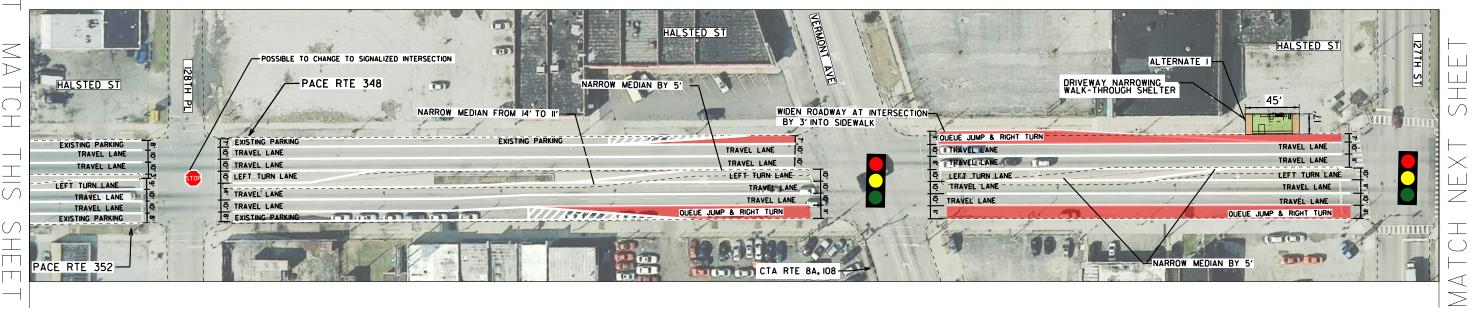
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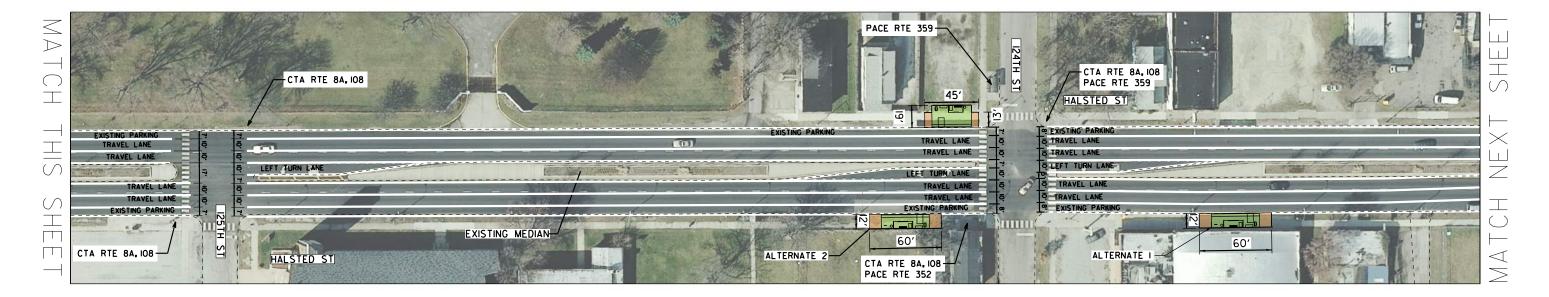
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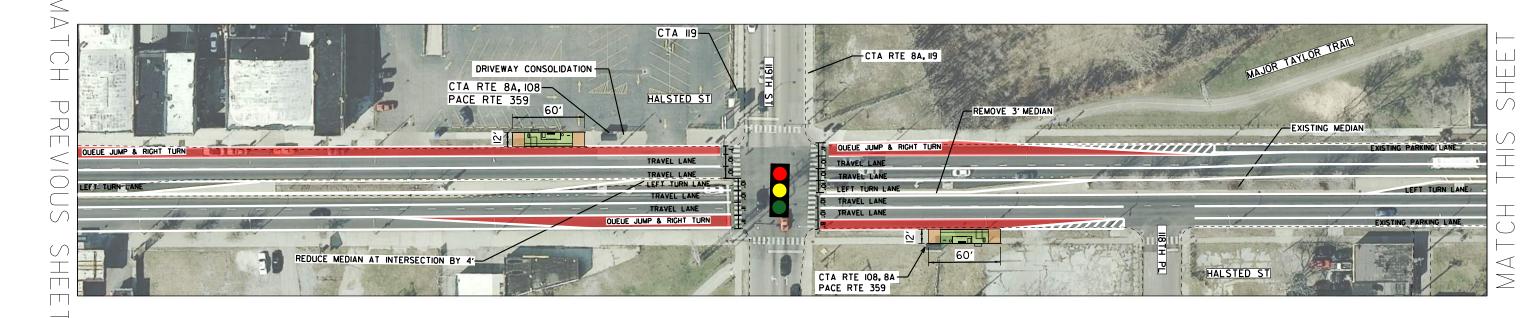
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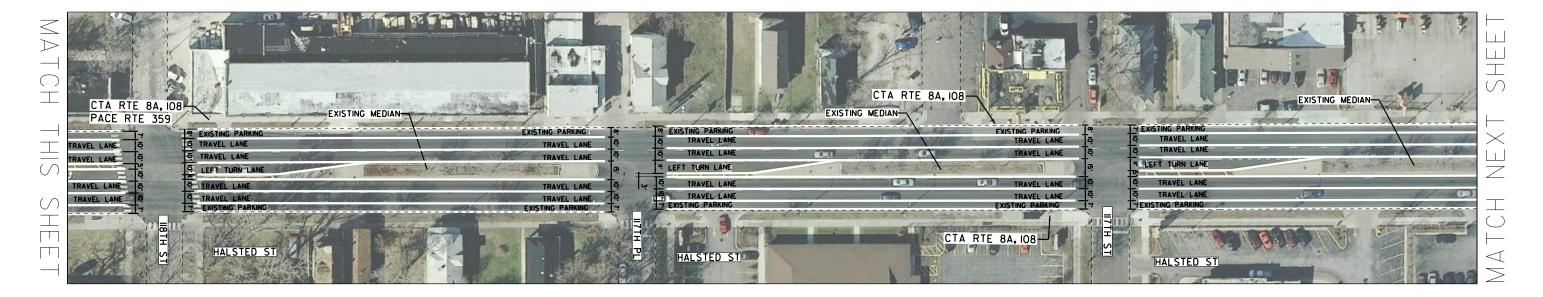
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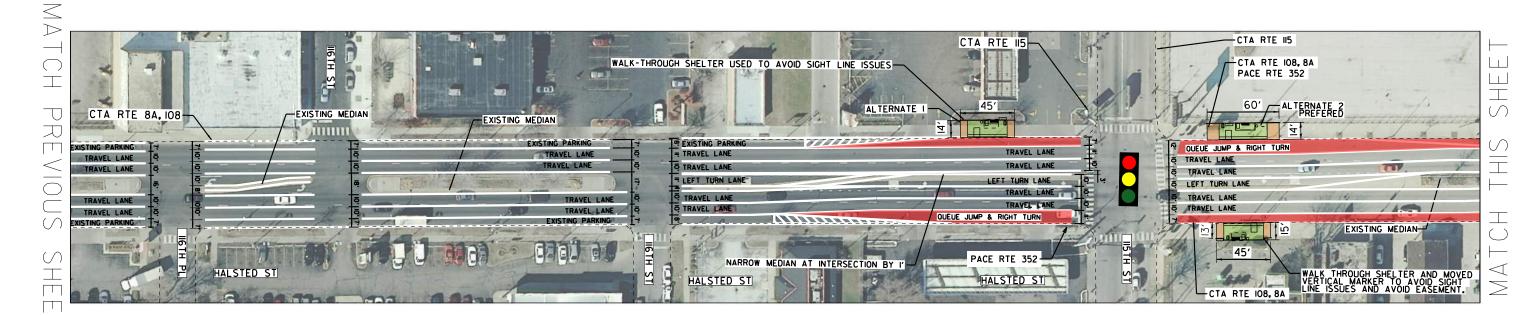
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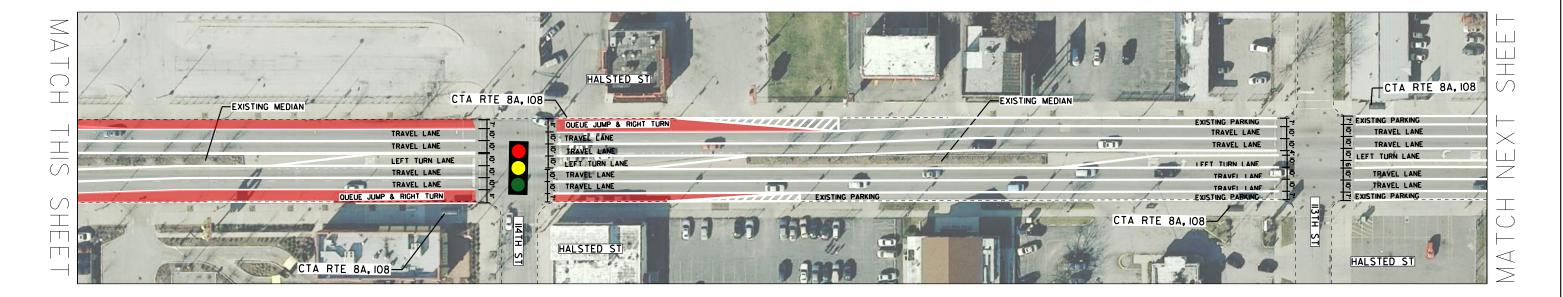
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	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'			ILLINOIS FED.	



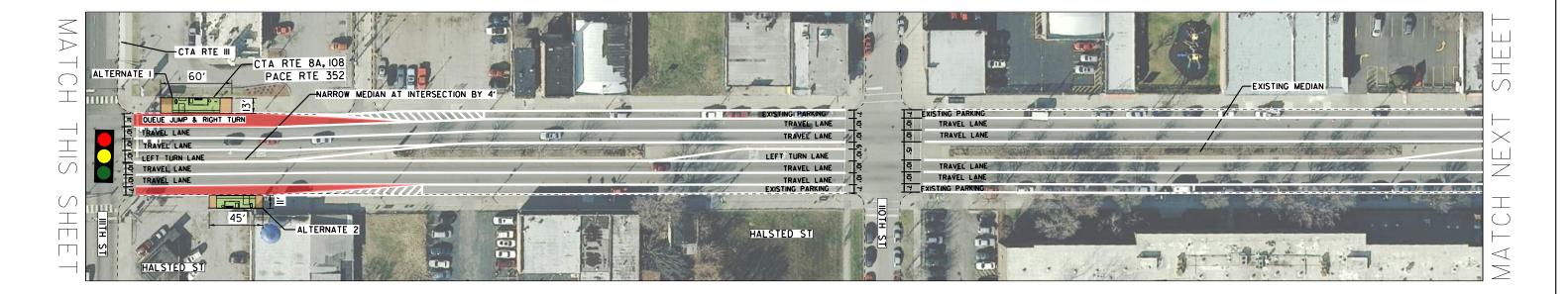
 $\equiv$ 

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MATCH ALTERNATE 2 WALK THROUGH SHELTER AND MOVE MARKER TO AVOID SIGHT LINE ISSUES  $\Box$ EXISTING MEDIAN T M FXISTING PARKING TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE  $\leq$ LEFT TURN LANE TRAVEL LANE Q
TRAVEL LANE Q
TRAVEL LANE Q
ISTING PARKING T TRAVEL LANE OUEUE JUMP & RIGHT TURN EXISTING PARKING EXISTING PARKING  $\bigcirc$ CTA RTE 8A, 108  $\perp$ HALSTED ST CTA RTE III



## LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

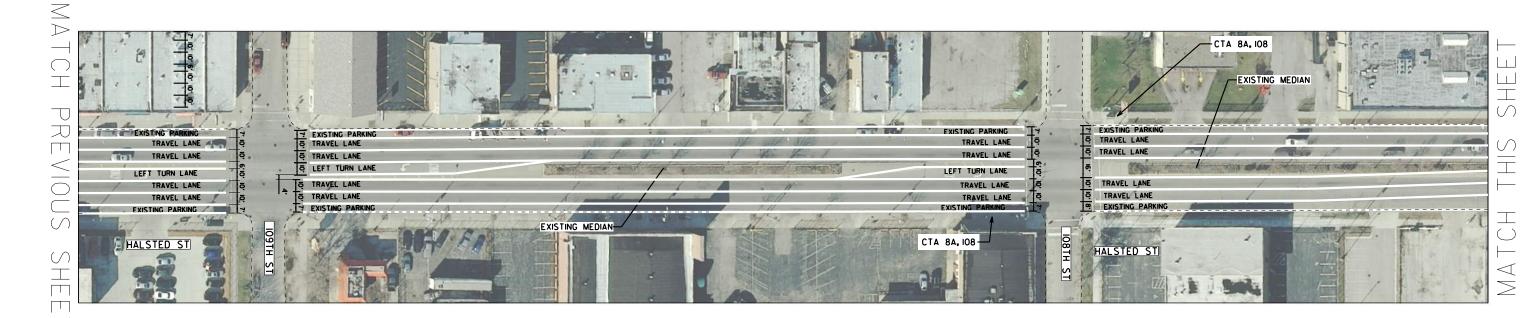
EXISTING BIKE LANE

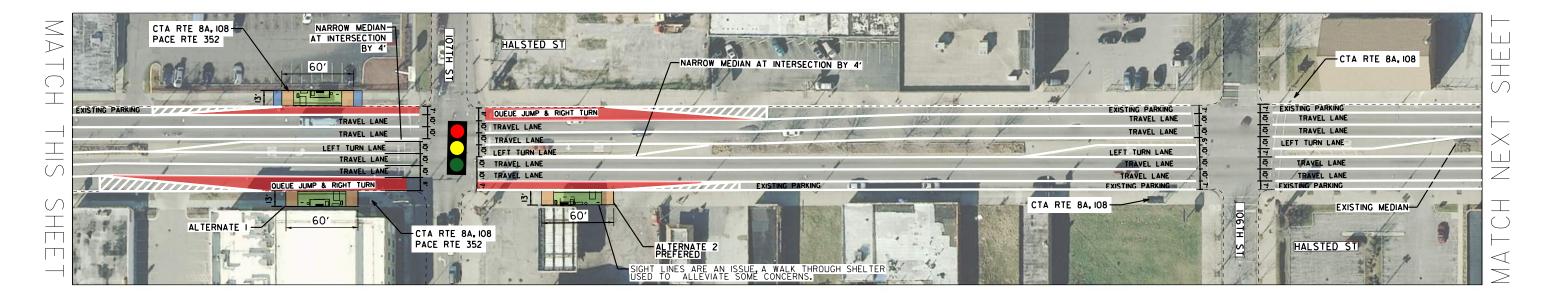
PROPOSED SIDEWALK

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDO	R - ALTERNATE 1	F.A. RTF	SECTION	COUNTY TOTAL SHEET SHEETS NO.
	DRAWN - CEJ	AND					COOK 9I I5
	CHECKED - HMK	HIND CLICACO TRANCIT ALITHORITY	112TH TO 110TH & HA	ILSTED STREET			CONTRACT NO.
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE:  " = 80'			ILLINOIS FED.	









EXISTING BIKE LANE

PROPOSED SIDEWALK

DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 1	F.A. SECTION COUNTY SHEET NO.
DRAWN - CEJ	J AND		COOK 91 16
CHECKED - HMK	CHICACO TRANCIT AUTHORITY	109TH TO 106TH & HALSTED STREET	CONTRACT NO.
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'	ILLINOIS FED. AID PROJECT



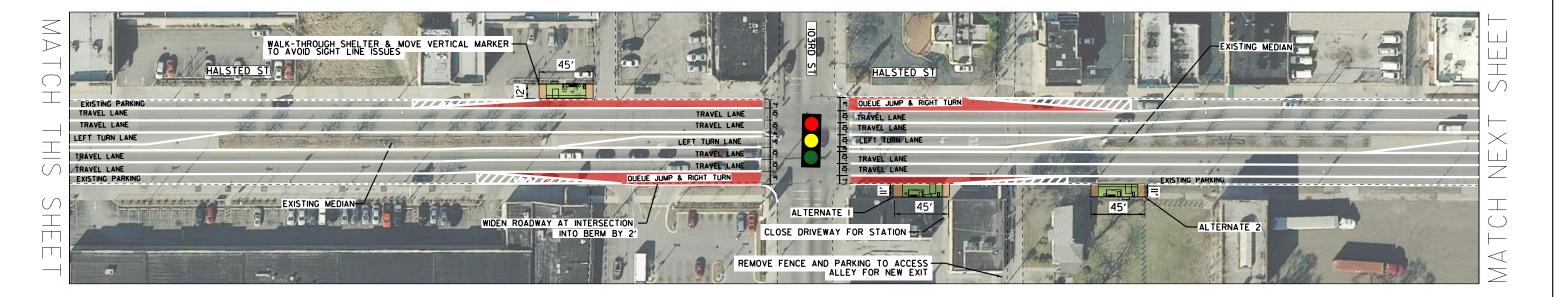
 $\equiv$ 



EXISTING STOP SIGN

FINANCE LANE

TRAVEL LAN



## LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

EXISTING BIKE LANE

PROPOSED SIDEWALK

	DESIGNED - CEJ	PACE SUBURBAN BUS	на с	STED BUS CORRIDOR	R - ALTERNATE 1	F.A.	SECTION	COUNTY TOTAL SHEET
	DRAWN - CEJ	AND				10122		COOK 91 17
	CHECKED - HMK	HIND CLICACO TRANCIT ALITHORITY	כשו	TH TO 103RD & HA	ALSIED SIREE!			CONTRACT NO.
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'				ILLINOIS F	FED. AID PROJECT





 $\leq$ CTA RTE 8A, 108 EXISTING MEDIAN  $\perp$ EXISTING PARKIN QUEUE JUMP & RIGHT TURN TRAVEL LANE O LEFT TURN LANE LEFT TURN LANE LEFT TURN LANE  $\equiv$ TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE QUEUE JUMP & RIGHT TURN EXISTING PARKING EXISTING MEDIAN CTA RTE 8A, 108 里 () $\triangleleft$  $\Box$ CTA RTE 8A, 108 



## LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

EXISTING BIKE LANE

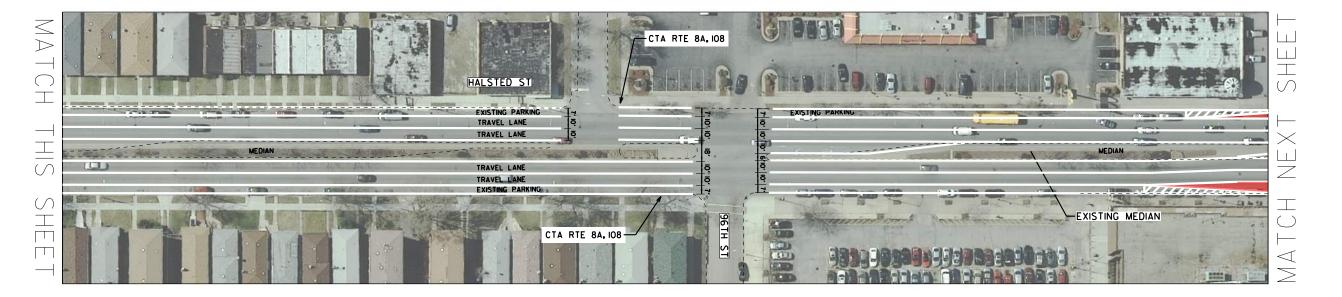
PROPOSED SIDEWALK

DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 1	F.A. SECTION	COUNTY TOTAL SHEET SHEETS NO.
DRAWN - CEJ	AND		NIL.	COOK 91 18
CHECKED - HMK	HIND CLICACO TDANCIT ALITHODITY	102ND TO 99TH & HALSTED STREET		CONTRACT NO.
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'	ILLINOIS FED. A	





 $\leq$  $\perp$ BUS LANE Ž M TRAVEL LANE TRAVEL LANE RAVEL LANE TRAVEL LANE LEFT TURN LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE BUS LANE  $\bigcirc$  $\triangleleft$ 



#### LEGEND

PROPOSED BUS LANE

BUS LANE

PROPOSED STATION PLATFORM

PROPOSED PLATFORM RAMP

PROPOSED	SIDEWALK	EXISTING	BIKE	LANE

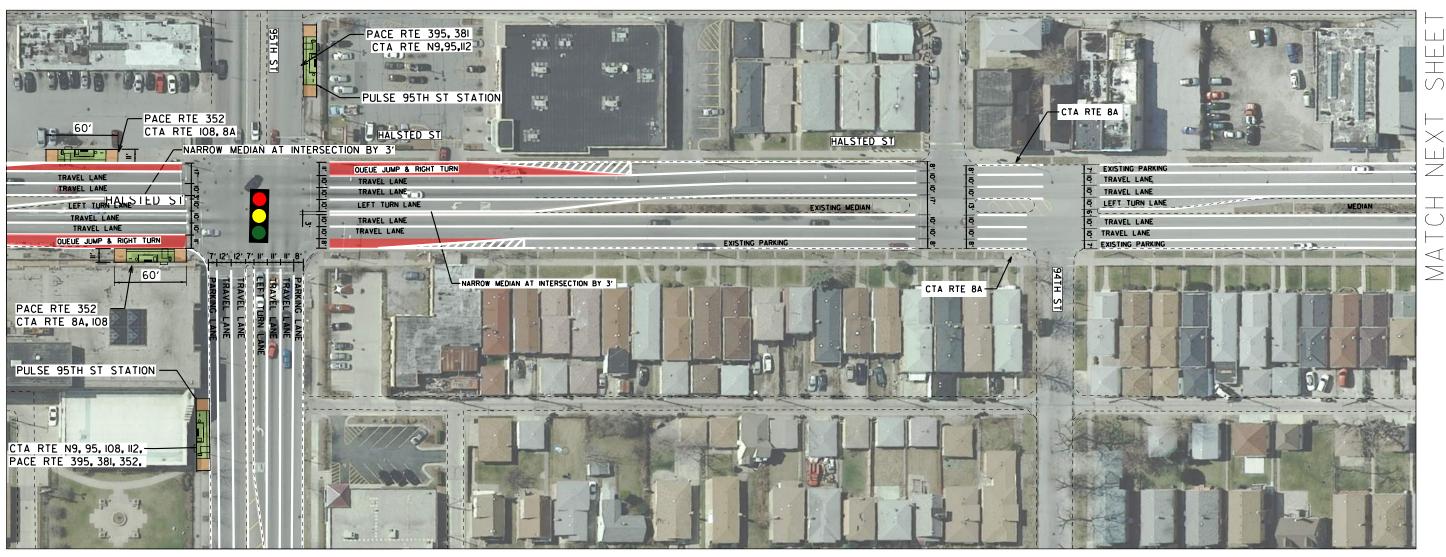
DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 1	F.A. SECTION	COUNTY TOTAL SHEET
DRAWN - CEJ	AND		11.12	COOK 91 19
CHECKED - HMK	\	98TH TO 96TH & HALSTED STREET	'	CONTRACT NO.
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I' = 80'	ILLINOIS FE	D. AID PROJECT



 $\bigcirc$ 

 $\geq$ 

PROPOSED SIDEWALK



MATCH SHEET

#### LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

EXISTING BIKE LANE

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 1			ECTION COUNTY	TOTAL SHEET SHEETS NO.
	DRAWN - CEJ	AND			NIL.	СООК	91 20
CHECKED - HMK	CHICAGO TRANSIT AUTHORITY	95TH TO 94TH & HALSTED STREET		CONTRACT NO.		T NO.	
	DATE - 04/03/2019	CHICAGO HANSIH AUTHONITH	SCALE: I" = 80'			ILLINOIS FED. AID PROJECT	



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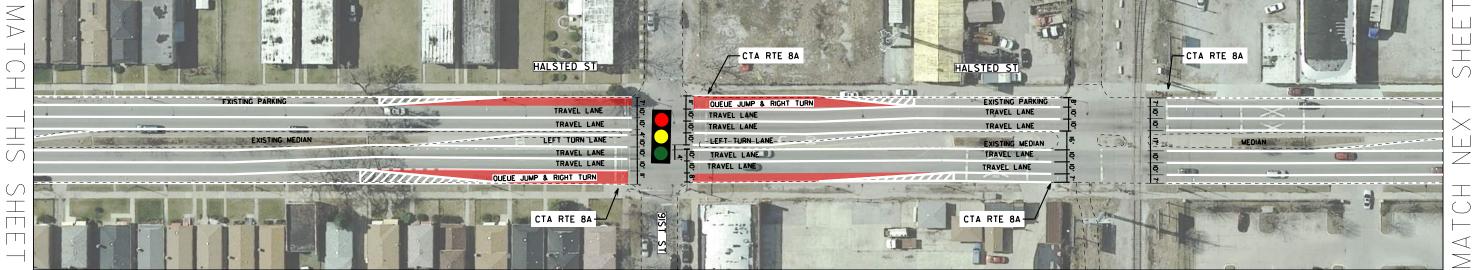
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 $\geq$ 



 $\leq$ HALSTED ST  $\Box$ Ž M EXISTING PARKING © EXISTING PARKING

TRAVEL LANE FXISTING PARKING TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE 5 TRAVEL LANE  $\leq$ LEFT TURN LANE LEFT TURN LANE LEFT TURN LANE TRAVEL LANE To EXISTING PARKING TRAVEL LANE EXISTING PARKING EXISTING PARKING  $\bigcirc$ CTA RTE 8A HALSTED ST



PROPOSED BUS LANE

PROPOSED STATION PLATFORM



PROPOSED PLATFORM RAMP

PROPOSED SIDEWALK



EXISTING BIKE LANE

DESIGNED - 0	CEJ	PACE	SUBURBA	N RIIS
DRAWN - C	CEJ	1 500	AND	11 000
CHECKED - H	нмк	CHICAGO	· <del>-</del>	ALITHODITY
DATE - C	04/03/2019	CHICAGO	TRANSIT (	AUTHORITY

HALS	TED BUS	CORRIDOR -	- ALTERNATE 1
931	RD TO 91	ST & HALS	TED STREET
SCALE: I" = 80'			

F.A. RTE.	SECT	SECTION		COUNTY	TOTAL SHEETS	SHEET NO.
				соок	91	21
				CONTRACT	NO.	
		ILLINOIS	FED. AIC	PROJECT		

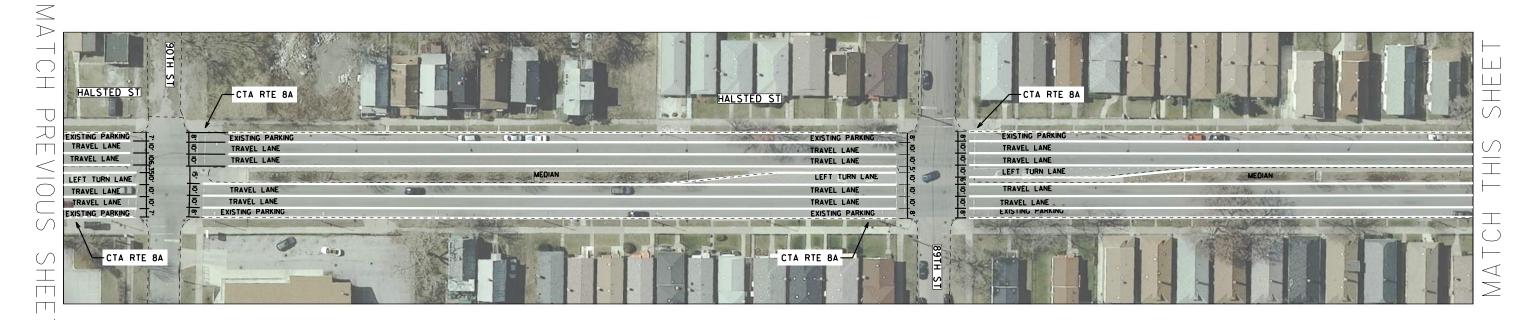
DRAFT FOR REVIEW

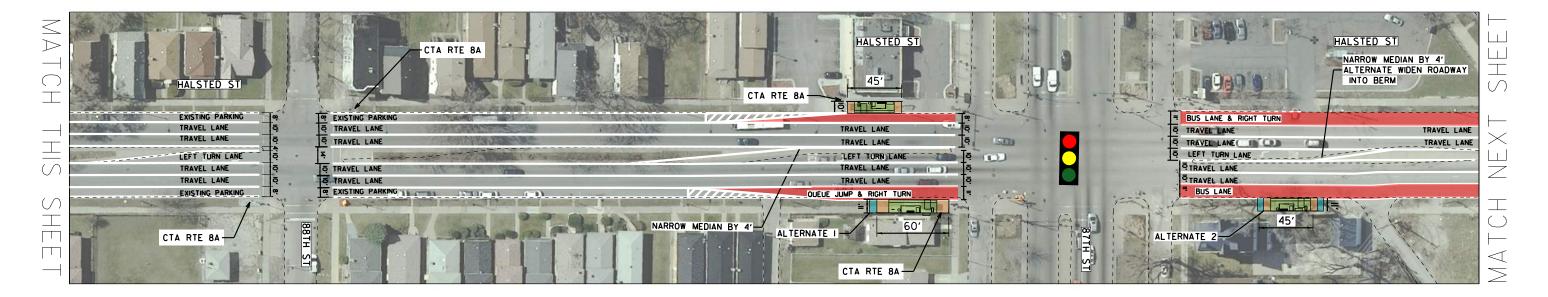
 $\equiv$ Ш  $\perp$ 

LEGEND









EXISTING BIKE LANE

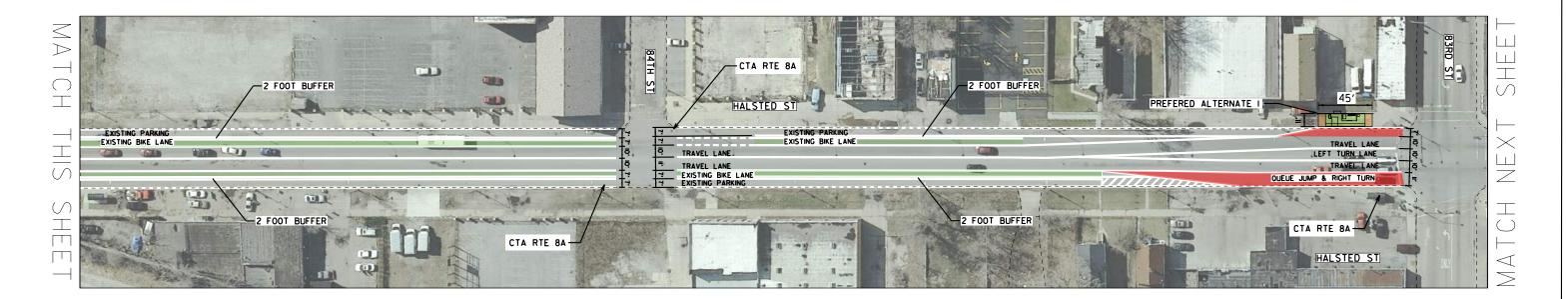
PROPOSED SIDEWALK

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 1	F.A.	SECTION	COUNTY TOTAL SHEET SHEET SHEETS NO.
	DRAWN - CEJ	AND				COOK 9I 22
	CHECKED - HMK	HIND CUICACO TDANCIT AUTUODITY	90TH TO 87TH & HALSTED STREET			CONTRACT NO.
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'		ILLINOIS FED.	AID PROJECT





TANKE LANE
TRAVEL LANE
TRAVEL



## LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

EXISTING BIKE LANE

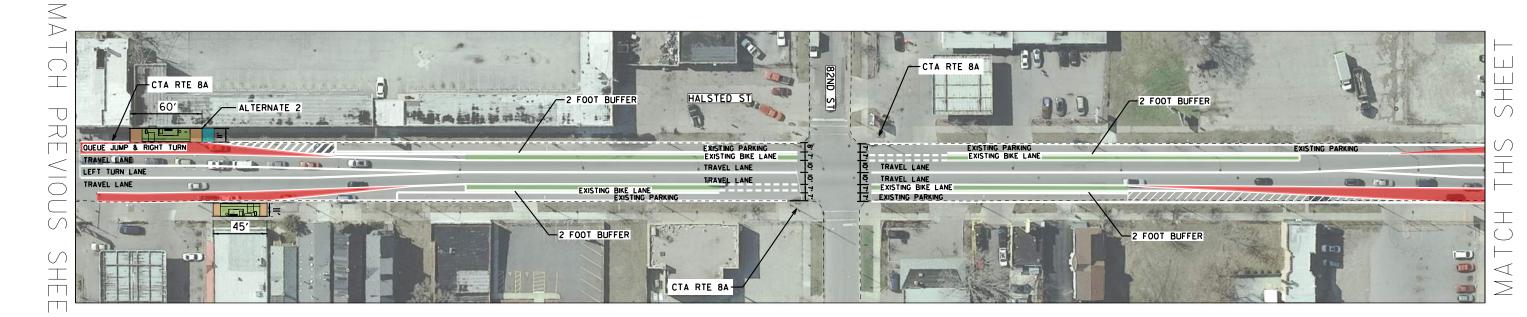
PROPOSED SIDEWALK

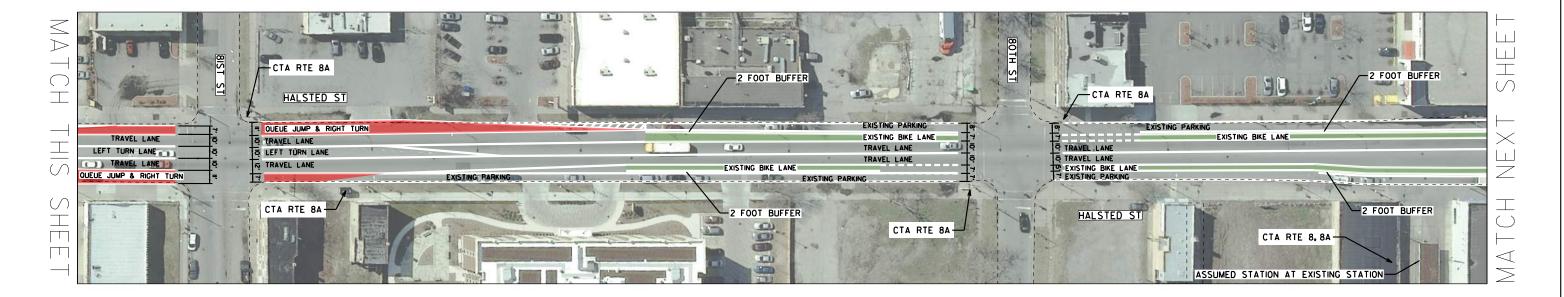
## DESIGNED - CEJ DRAWN - CEJ DRAWN - CEJ CHECKED - HMK CHECKED - HMK CHECKED - MK CHICAGO TRANSIT AUTHORITY SCHEILS 807

HALSTE	D BUS CORRIDOR	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
VINCENN	IES TO 83RD &			COOK	91	23	
VIIVELIVIA	LS TO OSIND &		CONTRACT NO.				
SCALE: I" = 80'				ILLINOIS	FED. AID PROJECT		









EXISTING BIKE LANE

PROPOSED SIDEWALK

	DESIGNED - CEJ		PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 1		F.A.	SECTION	COUNTY TOTAL SHEET SHEET NO.	
	DRAWN - CEJ		AND	82ND TO 80TH & HALSTED STREET					COOK 9I 24
	CHECKED - HMK							CONTRACT NO.	
	DATE - 04/03/2019		CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'				ILLINOIS F	FED. AID PROJECT





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PROPOSED SIDEWALK



MATCH SHEET 29

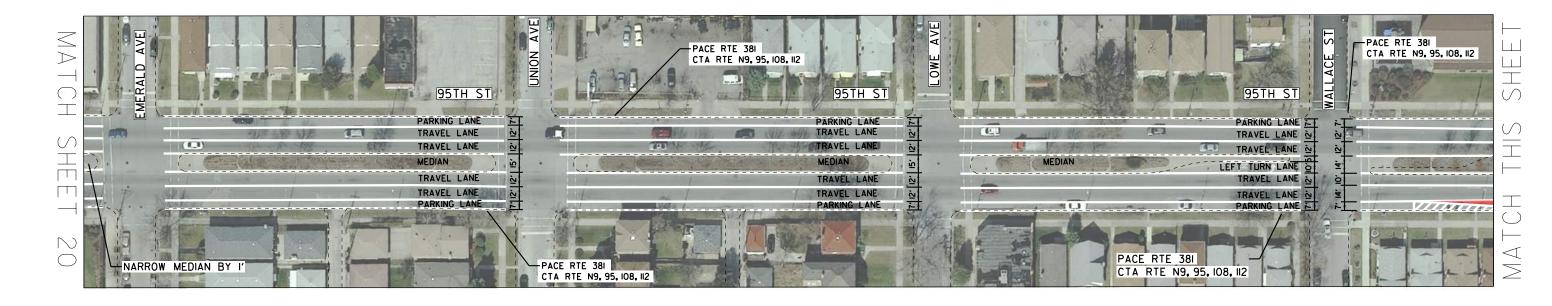
#### LEGEND PROPOSED PLATFORM RAMP PROPOSED BUS LANE PROPOSED STATION PLATFORM

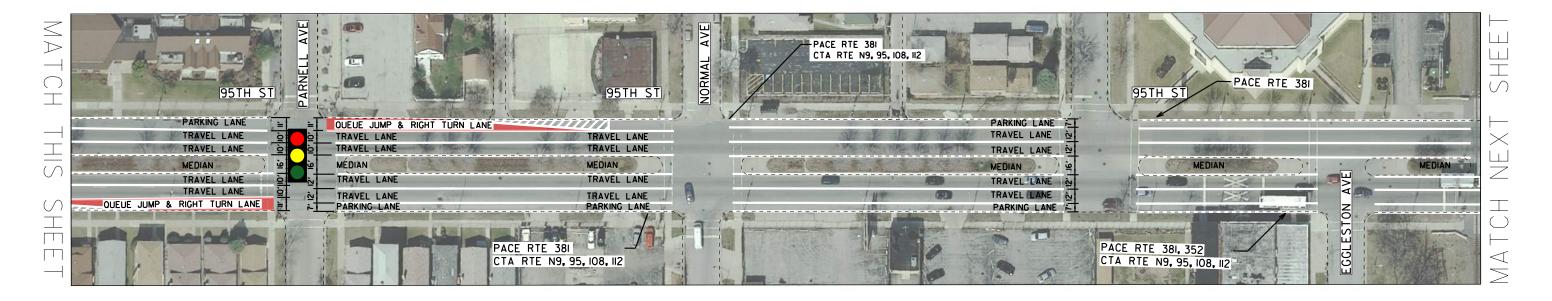
EXISTING BIKE LANE

DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 1	F.A. SECTION	COUNTY TOTAL SHEET NO.	q
DRAWN - CEJ	AND		NIL.	COOK 91 25	1
CHECKED - HMK	CHICAGO TRANSIT AUTHORITY	79TH & HALSTED STREET	<u>'</u>	CONTRACT NO.	1
DATE - 04/03/2019	CHICAGO IRANSII AUTHURITI	SCALE:  * = 80'	ILLINOIS FED. A	ID PROJECT	1









LEGEND

PROPOSED BUS LANE

PROPOSED SIDEWALK

PROPOSED STATION PLATFORM

PROPOSED PLATFORM RAMP

EXISTING BIKE LANE

DESIGNED - CEJ		AND CHICAGO TRANSIT AUTHORITY	HALSTED BUS CORRIDO	HALSTED BUS CORRIDOR - ALTERNATE 1			COUNTY	TOTAL S SHEETS	SHEET
DRAWN - CEJ						соок	91	26	
CHECKED - HMK			951H STREET - EMERAI	95TH STREET - EMERALD TO EGGLESTON			CONTRAC		
DATE - 04/03/2019		CHICAGO TRANSIT AUTHURITY	SCALE: I" = 80'			ILLINOIS FE	ED. AID PROJECT		





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PACE RTE 381, 352 PACE RTE 381 CTA RTE N9, 95, 108, 112 CTA RTE N9, 95, 108, 112 PARKING LANE PARKING LANE TRAVEL LANE  $\leq$ TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE : TRAVEL LANE : PARKING LANE TRAVEL LANE  $\bigcup$ PARKING LANE PARKING LANE PACE RTE 381 CTA RTE N9, 95, 108, 112



PROPOSED PLATFORM RAMP

LEGEND

PROPOSED BUS LANE

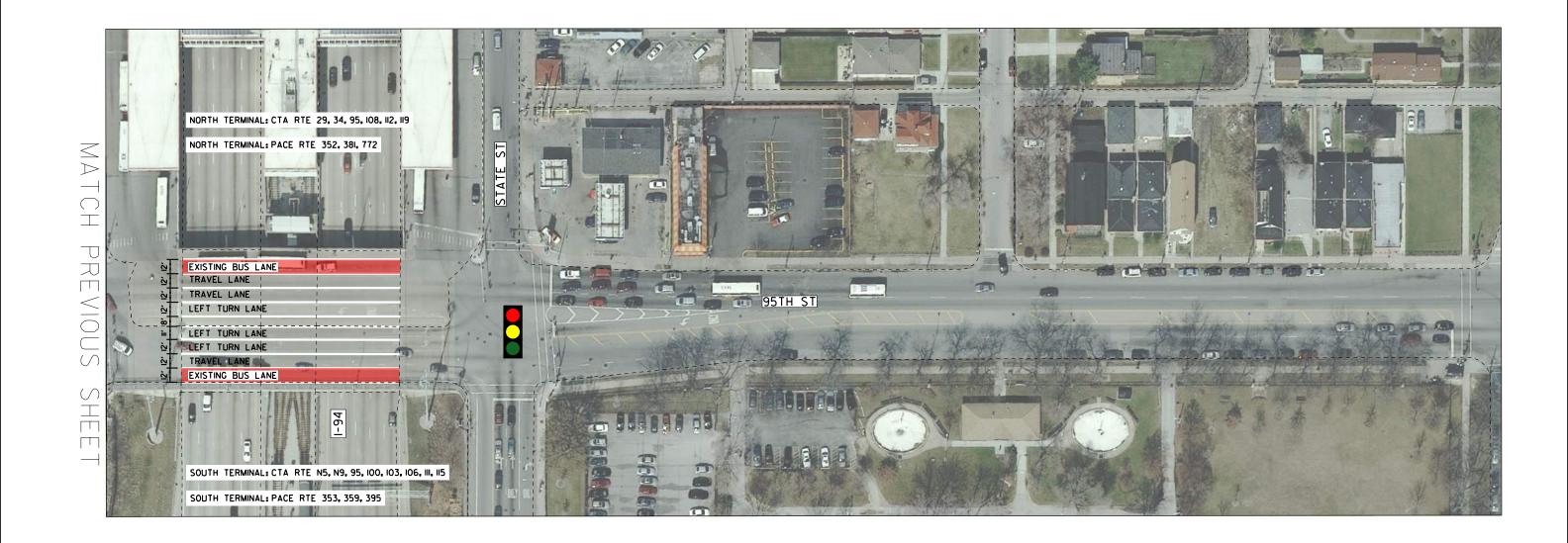
OPOSED BUS LANE PROPOSED STATION PLATFORM

PROPOSED SIDEWALK EXISTING BIKE LANE

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 1	F.A. SECTION	COUNTY TOTAL SHEET SHEETS NO.
	DRAWN - CEJ	AND	95TH STREET - HARVARD TO LAFAYETTE		COOK 9I 27
	CHECKED - HMK	CHICAGO TRANSIT AUTHORITY	7011 SINCEL - HANVAND TO LAPATETTE	·	CONTRACT NO.
	DATE - 04/03/2019	CHICHOO HANSIH HOTHONITT	SCALE: I" = 80'	ILLINOIS FED. A	AID PROJECT







LEGEND

PROPOSED BUS LANE

PROPOSED SIDEWALK





EXISTING BIKE LANE

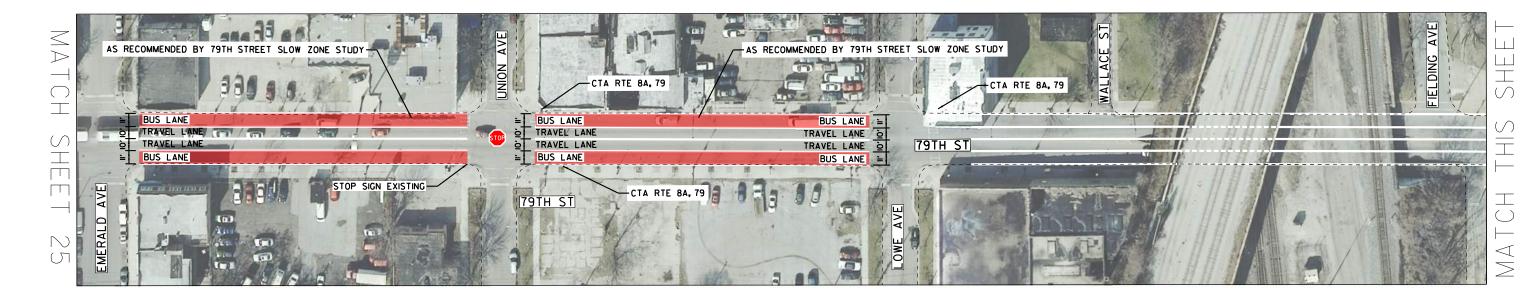
PROPOSED STATION PLATFORM

PROPOSED PLATFORM RAMP

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 1	F.A. SECTION	COUNTY TOTAL SHEET SHEETS NO.
-	DRAWN - CEJ CHECKED - HMK	AND	95TH STREET AT I-94		COOK 91 28
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'	ILLINOIS FED.	









## LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM

### DRAFT FOR REVIEW

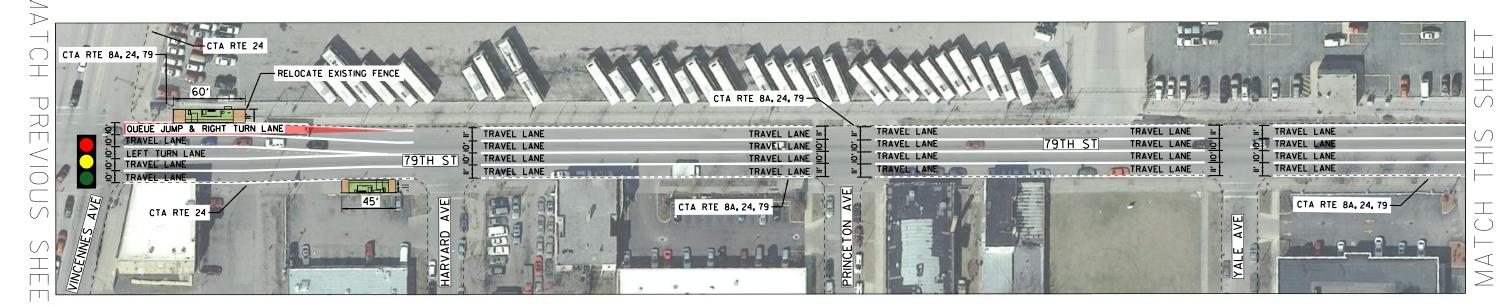
PROPOSED SIDEWALK	EXISTING BIKE LANE

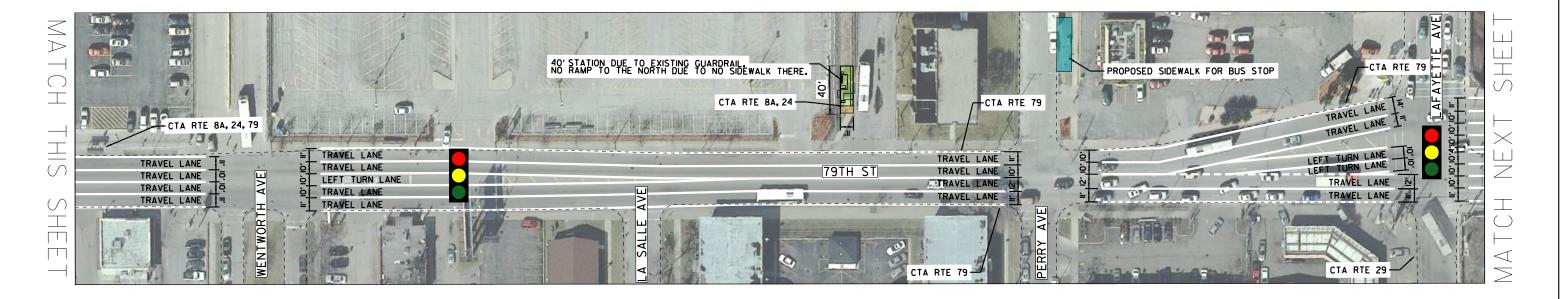
	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 1	F.A.	SECTION		TOTAL SHEET SHEETS NO.
	DRAWN - CEJ	AND	79TH STREET - EMERALD TO VINCENNES			СООК	91 29
	CHECKED - HMK	CHICACO TRANCIT AUTHORITY	791H STREET - EMERALD TO VINCENINES			CONTRACT N	NO.
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'		ILLINOIS FED.	AID PROJECT	

PROPOSED PLATFORM RAMP









#### LEGEND

PROPOSED STATION PLATFORM

#### DRAFT FOR REVIEW

PROPOSED SIDEWALK	EXISTING BIKE LANE

PROPOSED BUS LANE

DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 1	F.A. SECTION COUNTY TOTAL SHEET NO.
DRAWN - CEJ	AND		COOK 91 30
CHECKED - HMK	CHICAGO TRANSIT AUTHORITY	79TH STREET - VINCENNES TO LAFAYETTE	CONTRACT NO.
DATE - 04/03/2019	CHICHGO INHINSII HOTHONIII	SCALE:  " = 80'	ILLINOIS FED. AID PROJECT

PROPOSED PLATFORM RAMP







LEGEND

PROPOSED BUS LANE

PROPOSED SIDEWALK

EXISTING BIKE LANE

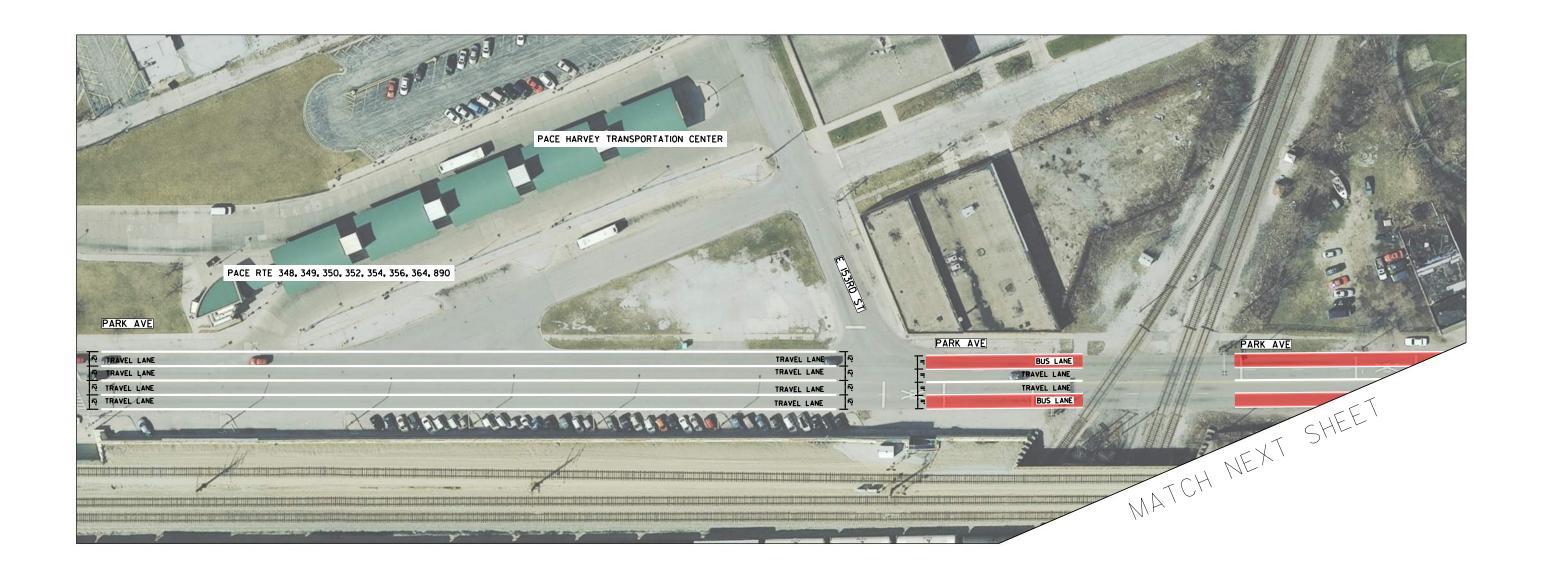
PROPOSED STATION PLATFORM

PROPOSED PLATFORM RAMP

		·		
DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 1	RTE. SECTION	COUNTY TOTAL SHEET
DRAWN - CEJ			NIE.	COOK 91 31
CHECKED - HMK	AND	79TH STREET - STATE TO WABASH		CONTRACT NO.
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'	ILLINOIS FED. A	AID PROJECT







EXISTING BIKE LANE

PROPOSED SIDEWALK

DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 2 PACE HARVEY TRANSPORTATION CENTER		F.A.	SECTION	COUNTY TOTAL SHEET SHEETS NO.	
DRAWN - CEJ	J ACL SOBORBAN BOS					COOK 9I 32	
CHECKED - HMK	HIND CLUCACO TRANCIT ALITHORITY					CONTRACT NO.	
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'				ILLINOIS	FED. AID PROJECT





#### MATCH PREVIOUS SHEET





#### LEGEND

PROPOSED BUS LANE

PROPOSED SIDEWALK

EXISTING BIKE LANE

PROPOSED STATION PLATFORM

#### PROPOSED PLATFORM RAMP

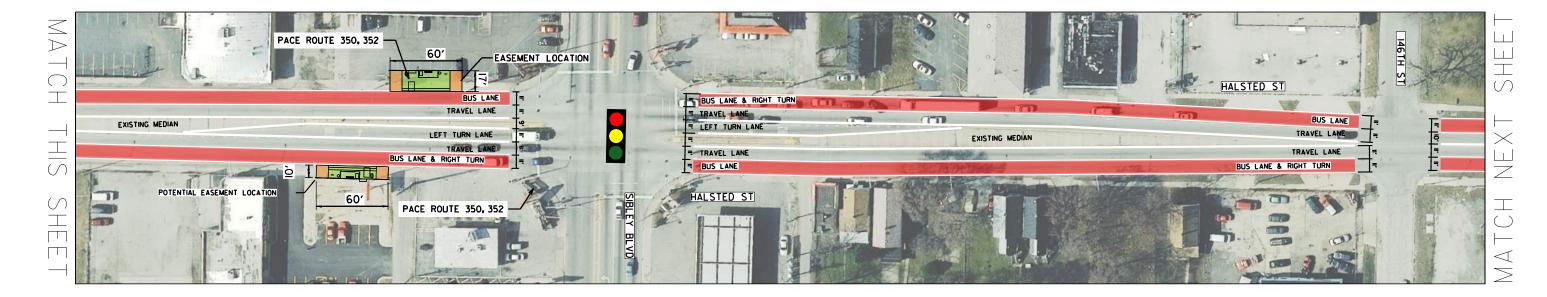
	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 2	F.A. SECTION	COUNTY TOTAL SHEET SHEET NO.
	DRAWN - CEJ	AND CHICAGO TRANSIT AUTHORITY		***************************************	COOK 9I 33
	CHECKED - HMK		152ND TO 150TH & HALSTED STREET		CONTRACT NO.
	DATE - 04/03/2019		SCALE: I" = 80'	ILLINOIS FED. A	AID PROJECT





 $\leq$ EXISTING ACCESS GATE LOCATED BEHIND STATION E 149TH ST SIDEWALK EXTENSION PACE ROUTE 352  $\Box$ T M TRAVEL LANE  $\leq$ TE TRAVEL LANE TRAVEL LANE TRAVEL LANE (1) ()





#### LEGEND PROPOSED PLATFORM RAMP PROPOSED BUS LANE PROPOSED STATION PLATFORM

EXISTING BIKE LANE

PROPOSED SIDEWALK

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDO	IR - ALTERNATE 2	F.A.	SECTION	COUNTY TOTAL SHEET SHEETS NO.
	DRAWN - CEJ	AND			NIL.		COOK 9I 34
	CHECKED - HMK	HIND CLICACO TRANCIT ALITHORITY	149TH TO 146TH & F	HALSTED STREET			CONTRACT NO.
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'			ILLINOIS FE	ED. AID PROJECT

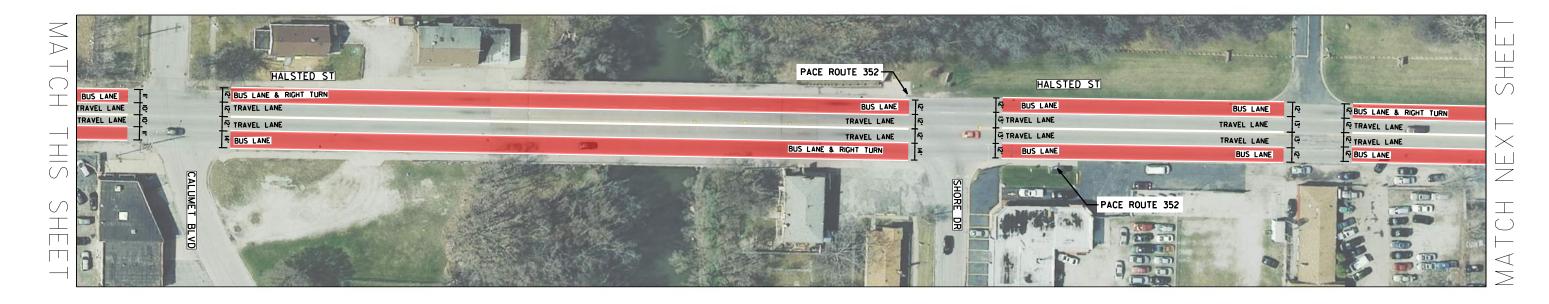




MATCH PREVIOUS SHEE

PROPOSED SIDEWALK

 $\Box$  $\perp$ BUS LANE & RIGHT TURN BUS LANE & RIGHT TURN TRAVEL LANE  $\equiv$ TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE BUS LANE BUS LANE & RIGHT TURN = BUS LANE BUS LANE & RIGHT TURN PACE ROUTE 352



## LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

EXISTING BIKE LANE

	DESIGNED - CEJ	PACE SUBURBAN BUS	на с	TED BUS CORRIDOF	2 - ALTERNATE 2	F.A.	SECTION	COUNTY TOTAL	AL SHEET
	DRAWN - CEJ	AND				IXIL.		COOK 9I	35
	CHECKED - HMK	HIND CLUCACO TRANCIT ALITHORITY	145TH TO SHORE DR & HALSTED STREET					CONTRACT NO.	
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'				ILLINOIS F	ED. AID PROJECT	









EXISTING BIKE LANE

PROPOSED SIDEWALK

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR	R - ALTERNATE 2	F.A. SF	ECTION	COUNTY	TOTAL SHEET
	DRAWN - CEJ	AND			***************************************	$\overline{}$	соок	91 36
	CHECKED - HMK	HIND CLICACO TRANCIT ALITHORITY	STEWART TO 142ND & HALSTED STREET		'		CONTRACT NO.	
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'			ILLINOIS FED. AID		









EXISTING BIKE LANE

PROPOSED SIDEWALK

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 2	F.A. SECTION	COUNTY TOTAL SHEET NO.
	DRAWN - CEJ	AND CHICAGO TRANSIT AUTHORITY		NIL.	COOK 91 37
	CHECKED - HMK		142ND TO 138TH & HALSTED STREET		CONTRACT NO.
	DATE - 04/03/2019		SCALE: I" = 80'	ILLINOIS FED.	AID PROJECT



DRAFT FOR REVIEW



 $\leq$ 138TH ST HALSTED ST Ш  $\perp$ EXISTING CONCRETE MEDIAN-BUS LANE T M TRAVEL LANE 현 BUS LANE & RIGHT TURN PACE RTE 348-HALSTED ST LEFT TURN LANE  $\equiv$ TRAVEL LANE LEFT TURN LANE EXISTING CONCRETE MEDIAN-BUS LANE & RIGHT TURN TRAVEL LANE RIGHT TURN ONLY BUS LANE To BUS LANE TRAVEL LANE BUS LANE N TRAVEL LANE TRAVEL LANE BUS LANE & RIGHT TURN TRAVEL LANE BUS LANE  $\triangleleft$ POTENTIAL EASEMENT LOCATION  $\geq$ PACE RTE 348 PACE RTE 352



## LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

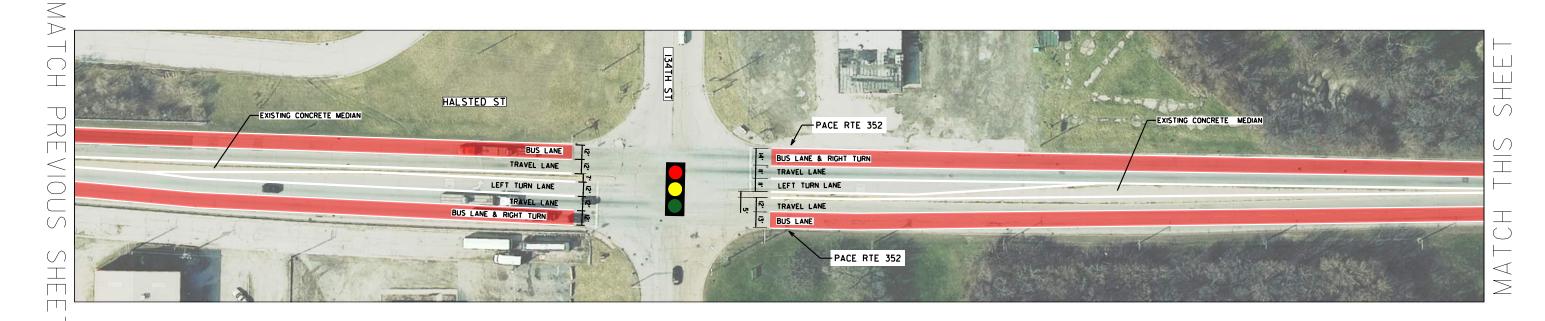
EXISTING BIKE LANE

PROPOSED SIDEWALK

## PACE SUBURBAN BUS ORAWN - CEJ ORAWN - CEJ









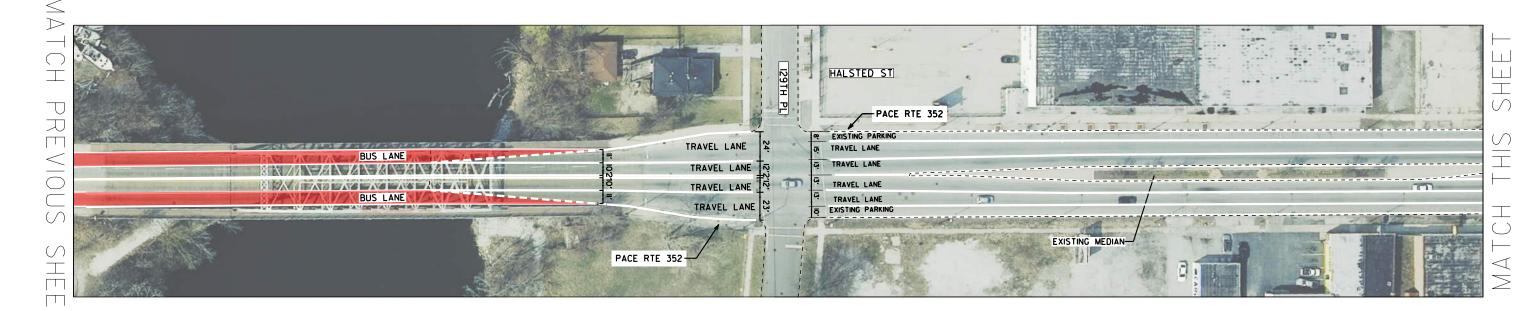
EXISTING BIKE LANE

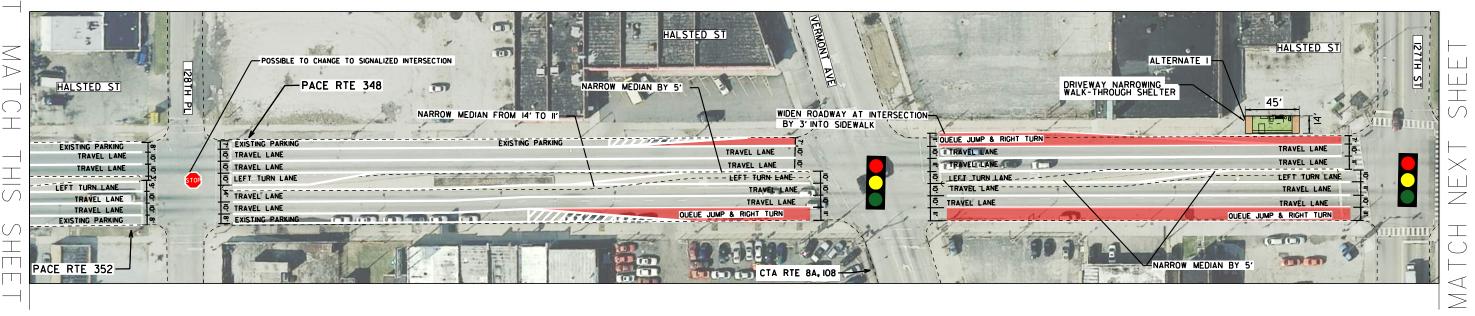
PROPOSED SIDEWALK

DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 2	F.A. SECTION	COUNTY SHEET
DRAWN - CEJ	AND		NIE.	COOK 9I 39
CHECKED - HMK	T CHICAGO TRANCIT AUTHORITY	134TH TO CAL SAG & HALSTED STREET		CONTRACT NO.
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'	ILLINOIS FED. AID	









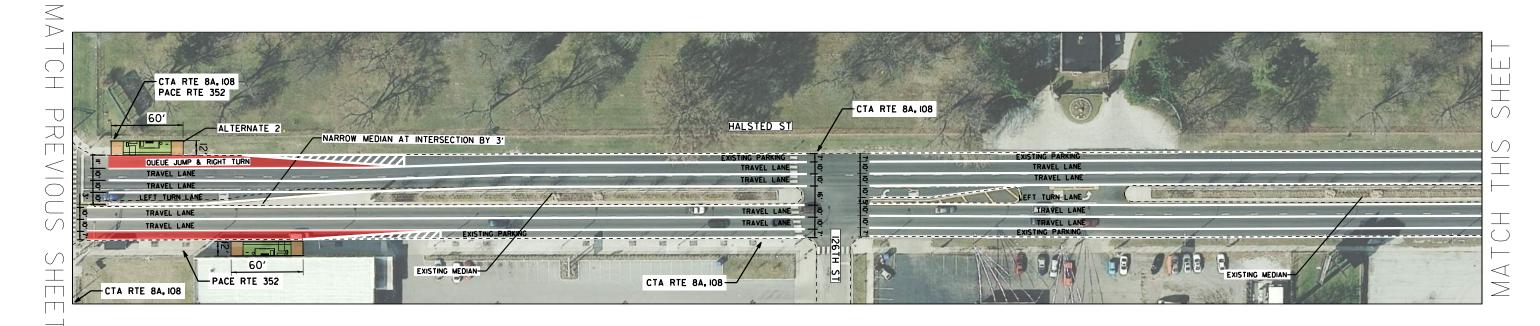
EXISTING BIKE LANE

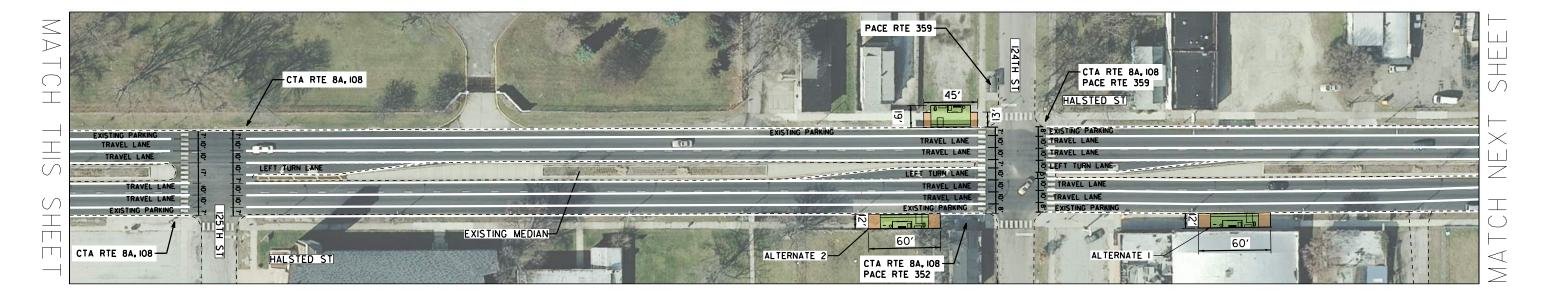
PROPOSED SIDEWALK

DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 2	F.A. SECTION	COUNTY TOTAL SHEET
DRAWN - CEJ	J ACE SOBORDAN BOS		NIL.	COOK 91 40
CHECKED - HMK	HIND CLICACO TRANCIT ALITHORITY	129TH TO 127TH & HALSTED STREET	'	CONTRACT NO.
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'	ILLINOIS FED. /	AID PROJECT









# LEGEND PROPOSED BUS LANE PROPOSED SIDEWALK PROPOSED SIDEWALK EXISTING BIKE LANE

DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR	R - ALTERNATE 2	F.A. RTF.	SECTION	COUNTY	TOTAL SI SHEETS	HEET NO.
DRAWN - CEJ CHECKED - HMK	AND	126TH TO 124TH & HA				COOK	91	41
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I* = 80'			ILLINOIS FED. AID F		NU.	





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TRAVEL LANE CTA RTE 8A. IO8



#### LEGEND

PROPOSED BUS LANE

PROPOSED SIDEWALK

PROPOSED STATION PLATFORM

#### EXISTING BIKE LANE

DESIGNED - CEJ	PACE SUBURBAN BUS
DRAWN - CEJ	AND
CHECKED - HMK	· <del>-</del>
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORIT

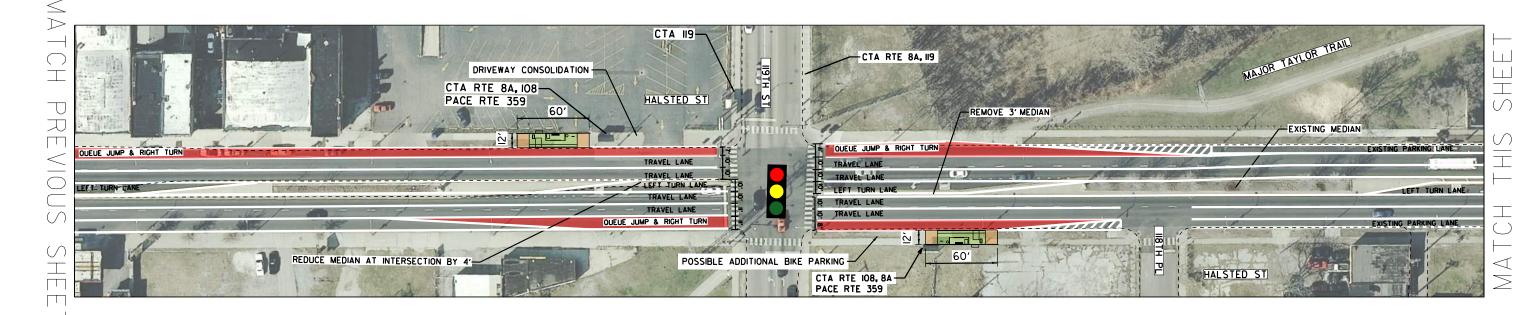
PROPOSED PLATFORM RAMP

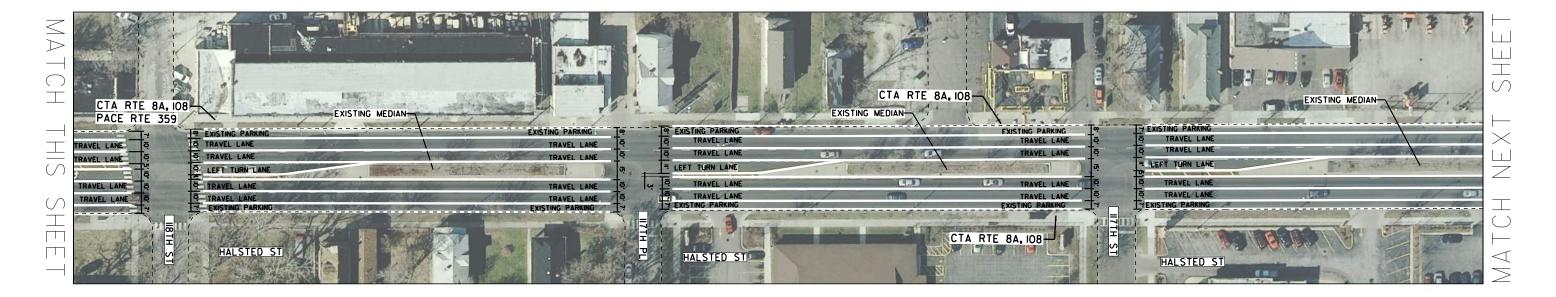
HALS	TED BUS	S CORRIDO	OR - ALTI	ERNATE 2
1231	RD TO 1	20TH & I	HALSTED	STREET
SCALE:  " = 80'				

F.A. RTE.	SECT	ION		COUNTY	TOTAL SHEETS	SHEET NO.
				соок	91	42
				CONTRACT	NO.	
		ILLINOIS	FED. AID	PROJECT		









EXISTING BIKE LANE

PROPOSED SIDEWALK

						┚
DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 2	F.A. RTF.	SECTION	COUNTY TOTAL SHEET	1
DRAWN - CEJ	AND				COOK 9I 43	1
CHECKED - HMK	HIND CLICACO TDANCIT ALITHODITY	119TH TO 117TH & HALSTED STREET			CONTRACT NO.	1
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'		ILLINOIS FED. AI	ID PROJECT	1

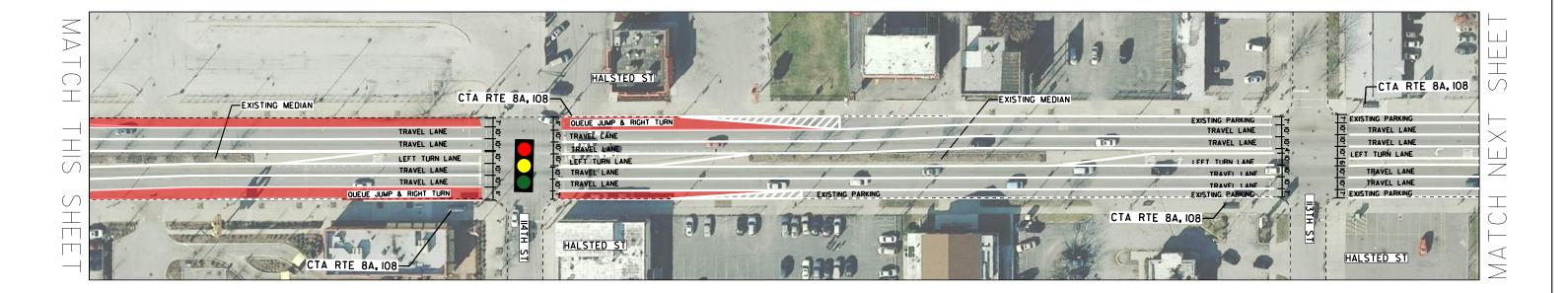


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 $\leq$ -CTA RTE 115 CTA RTE 115-SIGHT LINE ISSUES, CAN PUSH BACK STATION AND PUT IN WALK THROUGH SHELTER TO AVOID SIGHT LINE ISSUES. PACE RTE 352 Ш ALTERNATE I U CTA RTE 8A, 108-EXISTING MEDIAN EXISTING MEDIAN 7 QUEUE JUMP & RIGHT TURN TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE F LEFT TURN LANE LEFT TURN LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE 5 TRAVEL LANE TRAVEL LANE QUEUE JUMP & RIGHT TURN EXISTING MEDIAN NARROW MEDIAN AT INTERSECTION BY I'  $\Box$ -CTA RTE 108, 8A



#### LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

EXISTING BIKE LANE

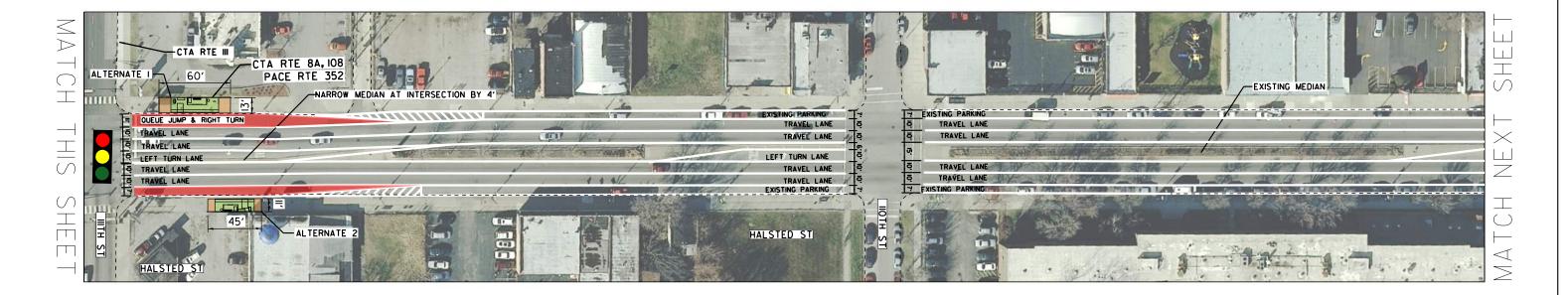
PROPOSED SIDEWALK

DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 2	F.A. SECTION COUNTY SHEET NO.
DRAWN - CEJ	J AND		COOK 91 44
CHECKED - HMK	HIND CHICACO TRANCIT AUTHORITY	116TH TO 113TH & HALSTED STREET	CONTRACT NO.
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE:   = 80'	ILLINOIS FED. AID PROJECT





MATCH ALTERNATE 2 WALK THROUGH SHELTER AND MOVE MARKER TO AVOID SIGHT LINE ISSUES  $\Box$ T M FXISTING PARKING TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE  $\leq$  $\equiv$ LEFT TURN LANE TRAVEL LANE Q
TRAVEL LANE Q
TRAVEL LANE Q
ISTING PARKING T TRAVEL LANE OUEUE JUMP & RIGHT TURN EXISTING PARKING EXISTING PARKING  $\perp$  $\bigcirc$ CTA RTE 8A, 108  $\leq$  $\perp$ HALSTED ST CTA RTE III



# LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

EXISTING BIKE LANE

PROPOSED SIDEWALK

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDO	R - ALTERNATE 2	F.A. RTF	SECTION	COUNTY TOTAL SHEET SHEETS NO.
	DRAWN - CEJ	AND			******		COOK 91 45
	CHECKED - HMK	HIVU CLICACO TDANCIT ALITHODITY	112TH TO 110TH & HALSTED STREET			CONTRACT NO.	
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'			ILLINOIS FED.	. AID PROJECT



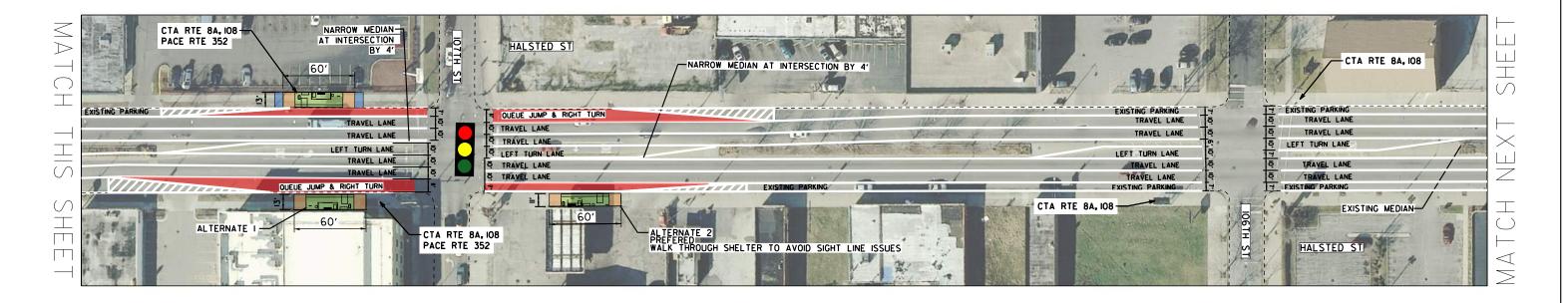
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 $\leq$ CTA 8A, 108 77 FYISTING PARKING THE EXISTING PARKING TRAVEL LANE  $\leq$ C LEFT TURN LANE TRAVEL LANE TO TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE THE FXISTING PARKING ()EXISTING MEDIAN CTA 8A, 108 HALSTED ST  $\Box$ 



## LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

EXISTING BIKE LANE

PROPOSED SIDEWALK

DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 2	F.A.	SECTION	COUNTY TOTAL SHEET
DRAWN - CEJ	J ACL SOBORDAN BOS	109TH TO 106TH & HALSTED STREET	1112.		COOK 9I 46
CHECKED - HMK	T CHICACO TRANCIT ALITHORITY	ושלוח וט ושפוח מ האבטובט אוהבבו			CONTRACT NO.
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE:  " = 80'		ILLINOIS FEI	D. AID PROJECT

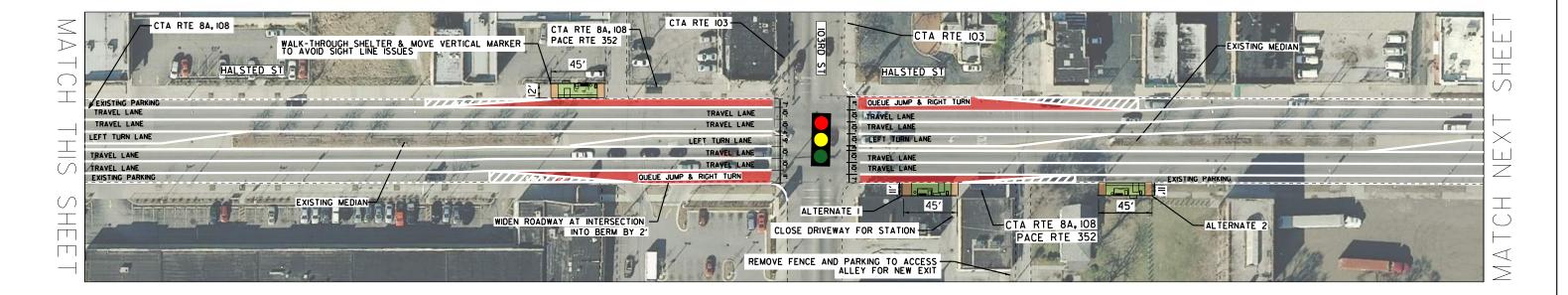


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EXISTING STOP SIGN HALSTED ST U FXISTING PARKING TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE LEFT TURN LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE FXISTING PARKING  $\bigcirc$ CTA RTE 8A, 108 IO4TH ST Ĭ



### LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

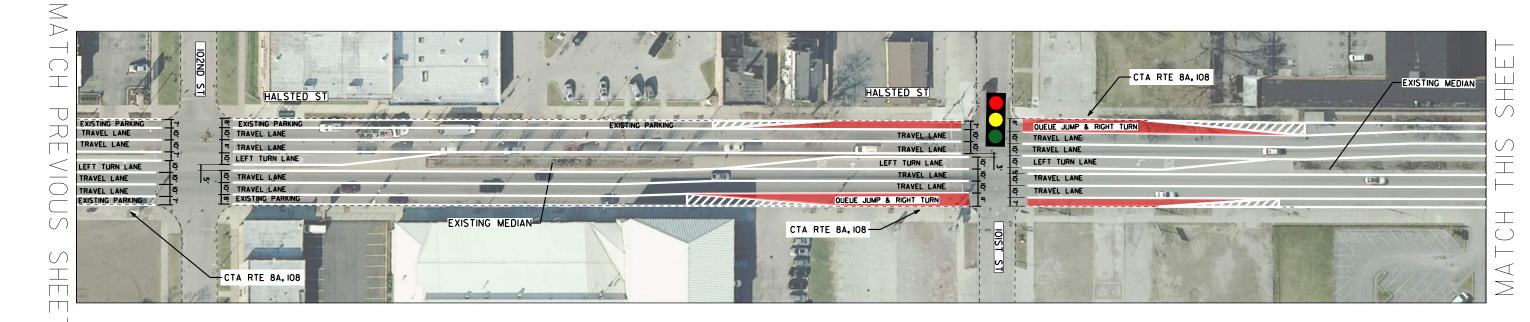
EXISTING BIKE LANE

PROPOSED SIDEWALK

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 2 105TH TO 103RD & HALSTED STREET			F.A.	SECTION	COUNTY TOTAL SHEET
	DRAWN - CEJ	AND						COOK 91 47
	CHECKED - HMK	HIND CLICACO TDANCIT ALITHODITY					CONTRACT NO.	
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'				ILLINOIS	FED. AID PROJECT









EXISTING BIKE LANE

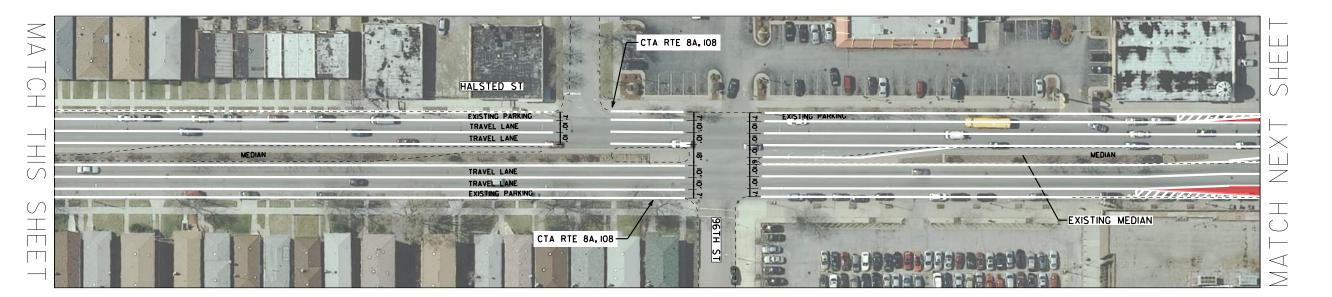
PROPOSED SIDEWALK

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 2	F.A. SECTION	ON COUNTY	TOTAL SHEET
	DRAWN - CEJ			***************************************	СООК	91 48
	CHECKED - HMK	AND Chicago transit authority s	102ND TO 99TH & HALSTED STREET			CT NO.
	DATE - 04/03/2019		SCALE:  * = 80'	ILL		





 $\leq$  $\perp$ BUS LANE QUEUE JUMP & RIGHT TURN LANE Ž M TRAVEL LANE TRAVEL LANE RAVEL LANE TRAVEL LANE LEFT TURN LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE BUS LANE  $\bigcirc$ CTA RTE 8A, 108- $\triangleleft$  $\perp$ CTA RTE 8A. IO8



### LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

EXISTING BIKE LANE

PROPOSED SIDEWALK

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 2	F.A. SE	ECTION	COUNTY TOTAL SHEET SHEET NO.
	DRAWN - CEJ	AND				COOK 9I 49
	CHECKED - HMK	HIND CLICACO TDANCIT ALITHODITY	98TH TO 96TH & HALSTED STREET			CONTRACT NO.
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'		ILLINOIS FED. A	AID PROJECT

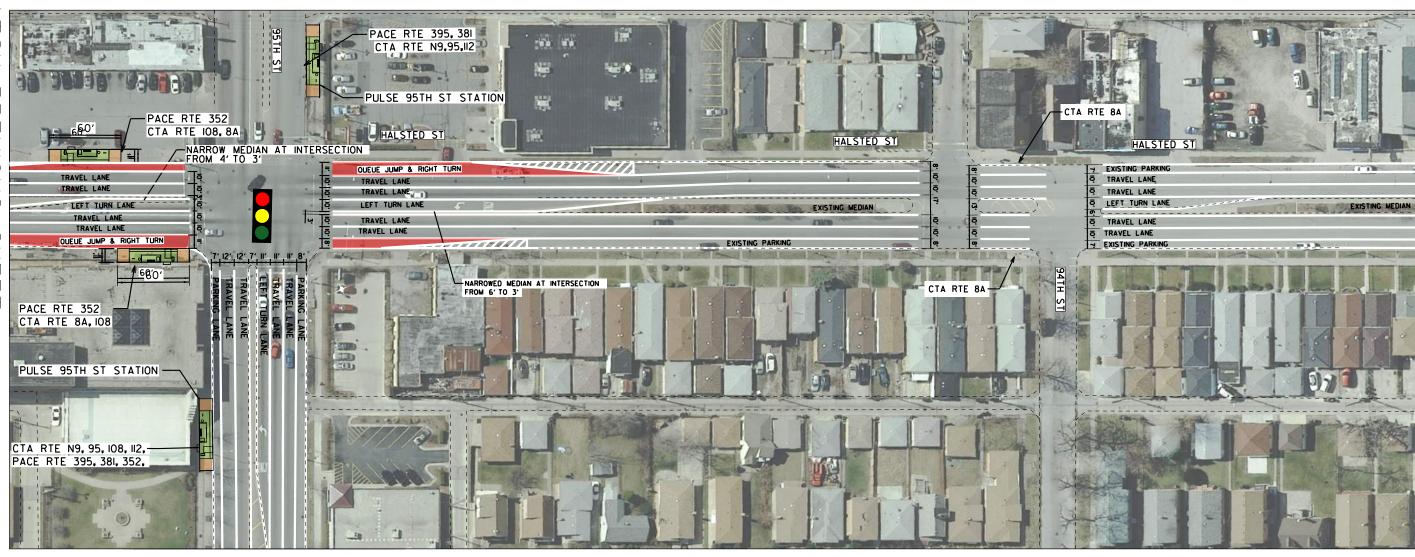


ليا

 $\perp$ 

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PROPOSED SIDEWALK



MATCH SHEET 56

## LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

EXISTING BIKE LANE

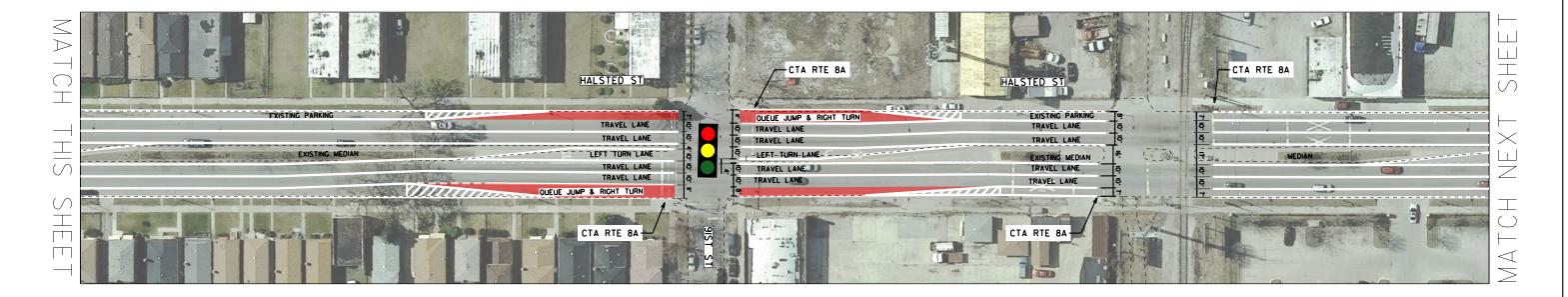
DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 2	F.A. SECTION	COUNTY TOTAL SHEET
DRAWN - CEJ	AND		1112	COOK 9I 50
CHECKED - HMK	HIND CHICACO TRANCIT AUTHORITY	95TH TO 94TH & HALSTED STREET		CONTRACT NO.
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I' = 80'	ILLINOIS FEI	D. AID PROJECT





 $\leq$  $\Box$  $\perp$ HALSTED ST  $\Box$ Ž M EXISTING PARKING EXISTING PARKIN © EXISTING PARKING

TRAVEL LANE FXISTING PARKING TRAVEL LANE TRAVEL LANE TRAVEL LANE 5 TRAVEL LANE TRAVEL LANE  $\leq$  $\equiv$ LEFT TURN LANE LEFT TURN LANE LEFT TURN LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE To TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE EXISTING PARKING EXISTING PARKING  $\bigcirc$  $\triangleleft$ CTA RTE 8A  $\geq$ HALSTED ST CTA RTE 8A



LEGEND

PROPOSED BUS LANE

PROPOSED SIDEWALK

EXISTING BIKE LANE

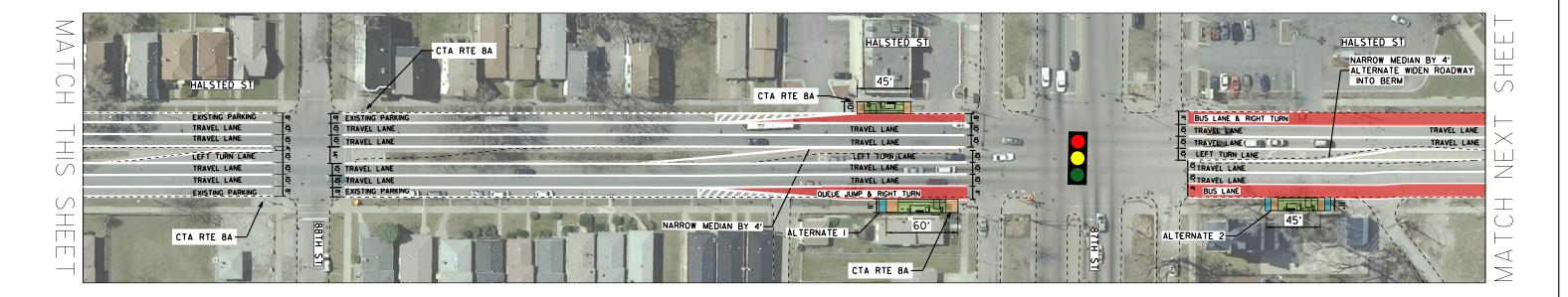
PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

DESIGNED - CEJ	DACE CUDUDDAN DUC	HALSTED BUS CORRIDOR - ALTERNATE 2	F.A. SECTION	COUNTY TOTAL SHEET
DRAWN - CEJ	PACE SUBURBAN BUS		RIE.	COOK 91 51
CHECKED - HMK	AND CUICAGO TRANGIT AUTUORITY	93RD TO 91ST & HALSTED STREET		CONTRACT NO.
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'	ILLINOIS FED.	AID PROJECT





 $\leq$ HALSTED ST -CTA RTE 8A T I EXISTING PARKING TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE  $\equiv$ LEFT TURN LANE LEFT TURN LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE EXISTING PARKING EXISTING PARKING T CTA RTE 8A  $\leq$  $\Box$ 



## LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

EXISTING BIKE LANE

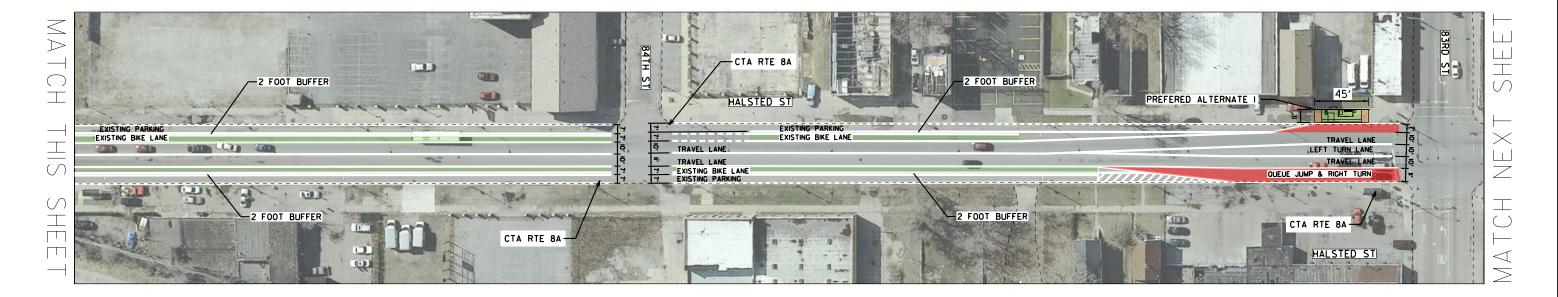
PROPOSED SIDEWALK

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 2	F.A. SECTION	COUNTY	TOTAL SHEET
	DRAWN - CEJ	AND			COOK	91 52
	CHECKED - HMK		90TH TO 87TH & HALSTED STREET		CONTRACT	T NO.
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'	ILLING	OIS FED. AID PROJECT	









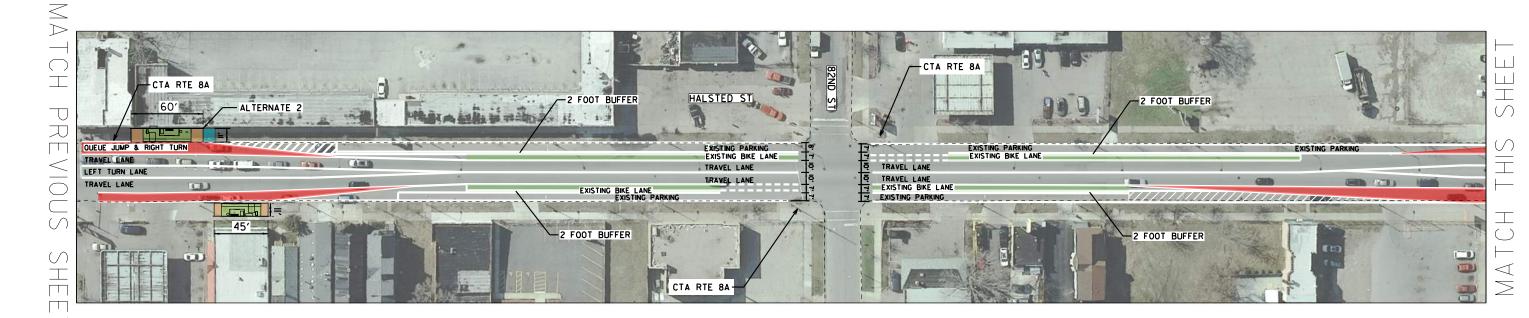
EXISTING BIKE LANE

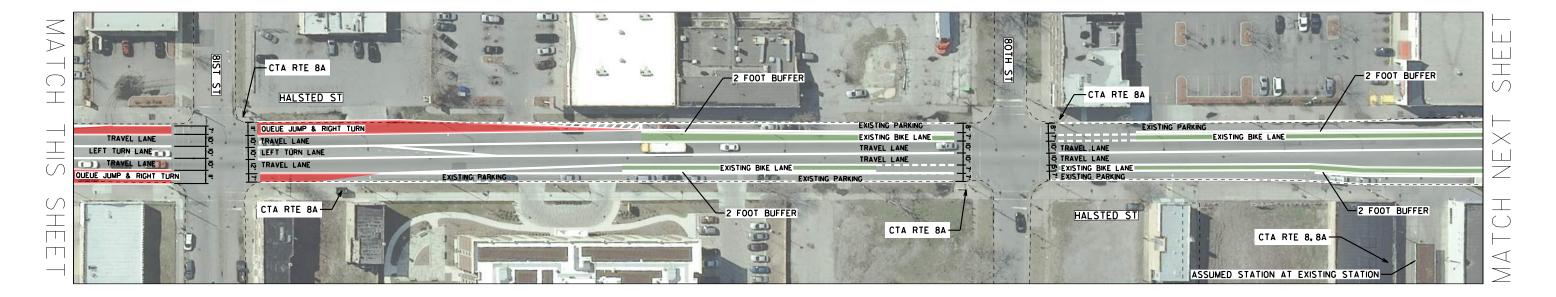
PROPOSED SIDEWALK

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDO	R - ALTERNATE 2	F.A.	SECTION	COUNTY TOTAL SHEET SHEET NO.
	DRAWN - CEJ	AND			IXIL.		COOK 9I 53
	CHECKED - HMK	HIND CLICACO TDANICIT ALITHODITY	VINCENNES TO 83RD &	HALSIED SIREE!			CONTRACT NO.
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'			ILLINOIS FEI	D. AID PROJECT









EXISTING BIKE LANE

PROPOSED SIDEWALK

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 2	F.A. SECTIO	ON COUNTY	TOTAL SHEET
	DRAWN - CEJ	AND			СООК	91 54
	CHECKED - HMK	HIND CLICACO TDANCIT ALITHODITY	82ND TO 80TH & HALSTED STREET		CONTRACT	Γ NO.
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'	IL	LLINOIS FED. AID PROJECT	



PROPOSED SIDEWALK



MATCH SHEET 59

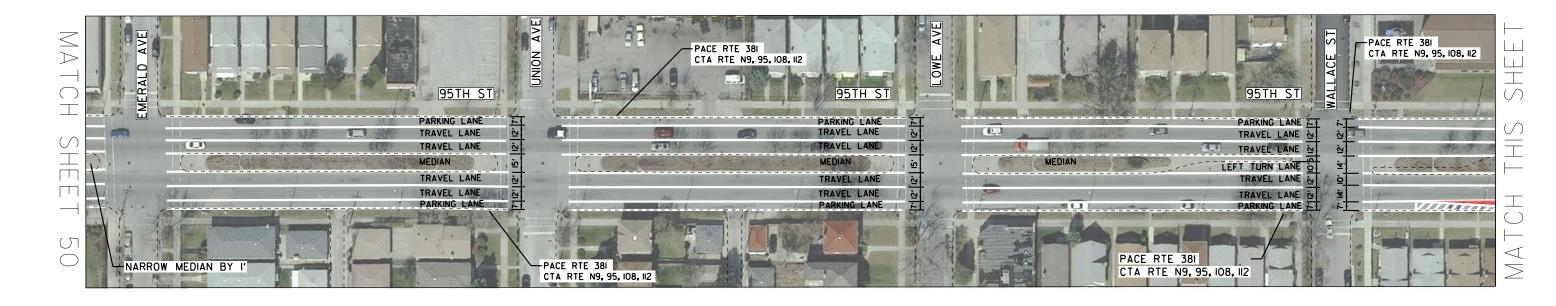
#### LEGEND PROPOSED PLATFORM RAMP PROPOSED BUS LANE PROPOSED STATION PLATFORM

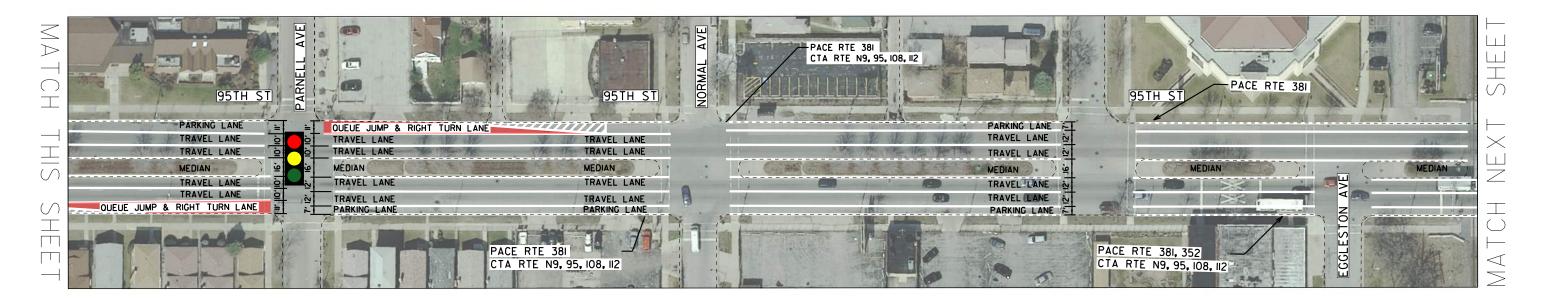
EXISTING BIKE LANE

DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDO	OR - ALTERNATE 2	F.A. RTE.	SECTION	COUNTY S	TOTAL S	NO.
DRAWN - CEJ	AND	79TH & HALST				СООК	91	55
CHECKED - HMK	CHICAGO TRANSIT AUTHORITY		LD SINELI			CONTRACT	NO.	
DATE - 04/03/2019	CHICAGO INANSII AOTHONITI	SCALE: I* = 80'			ILLINOIS FED.	AID PROJECT		









LEGEND

PROPOSED BUS LANE

PROPOSED SIDEWALK

EXISTING BIKE LANE

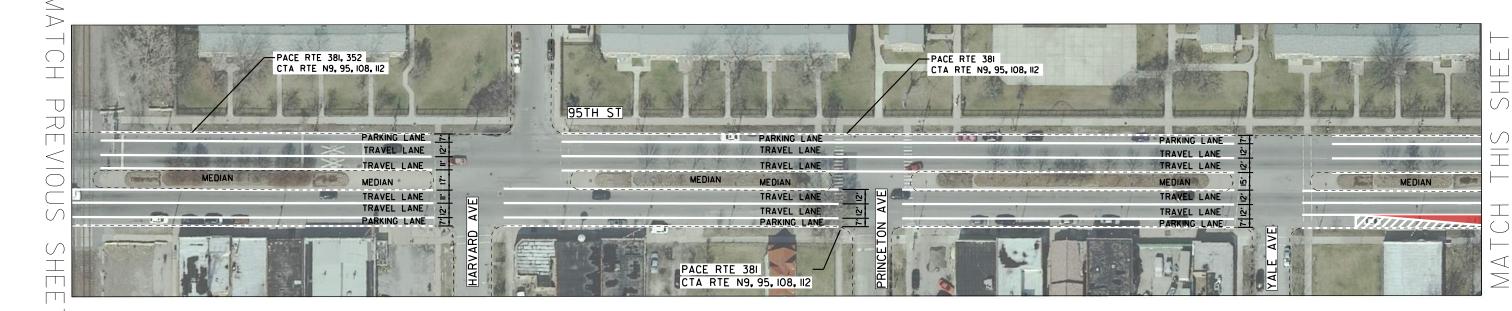
PROPOSED STATION PLATFORM

PROPOSED PLATFORM RAMP

	·	<del>_</del>		
DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 2	F.A. SECTION	COUNTY TOTAL SHEET SHEET NO.
DRAWN - CEJ	AND		NIE.	COOK 91 56
CHECKED - HMK		95TH STREET - EMERALD TO EGGLESTON		CONTRACT NO.
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: 1" = 80"	ILLINOIS FED.	









PROPOSED PLATFORM RAMP

LEGEND

PROPOSED BUS LANE

PROPOSED SIDEWALK

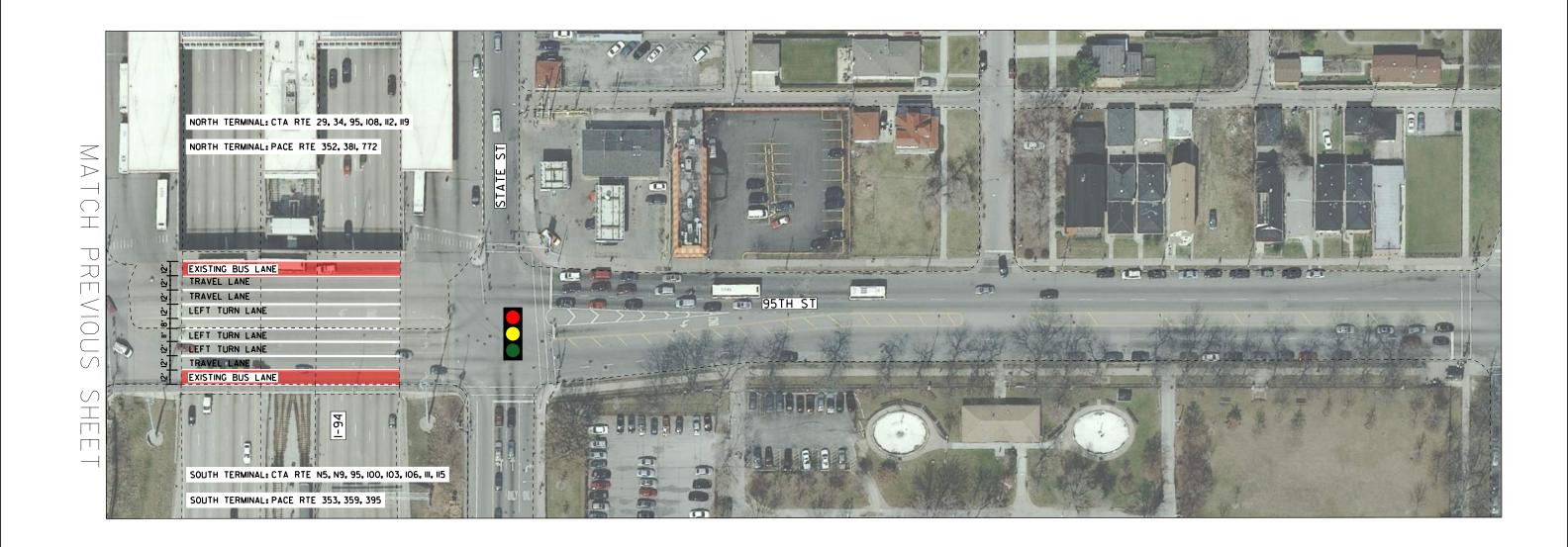
OSED BUS LANE PROPOSED STATION PLATFORM

EXISTING BIKE LANE

DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 2	F.A. SECTION	COUNTY TOTAL SHEET NO.
DRAWN - CEJ	AND	95TH STREET - HARVARD TO LAFAYETTE		COOK 9I 57
CHECKED - HMK	CHICAGO TRANSIT AUTHORITY	731H STREET - HHRVHRD TO LHFHTETTE		CONTRACT NO.
DATE - 04/03/2019	CHICAGO TRANSIT AOTHORITT	SCALE: I" = 80'	ILLINOIS FED. A	ID PROJECT







LEGEND

PROPOSED BUS LANE

PROPOSED SIDEWALK





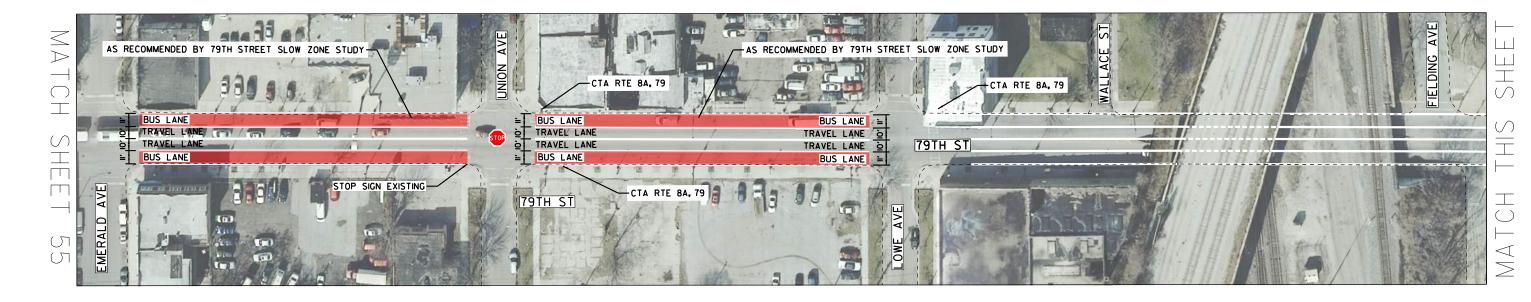
EXISTING BIKE LANE

PROPOSED PLATFORM RAMP PROPOSED STATION PLATFORM

DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 2	F.A. SECTION	COUNTY TOTAL SHEET
DRAWN - CEJ	J ACE SOBORDAN BOS		1012.	COOK 91 58
CHECKED - HMK	T CHICACO TRANCIT ALITHORITY	95TH STREET AT I-94		CONTRACT NO.
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'	ILLINOIS FED.	AID PROJECT









PROPOSED PLATFORM RAMP

LEGEND

PROPOSED BUS LANE

PROPOSED STATION PLATFORM

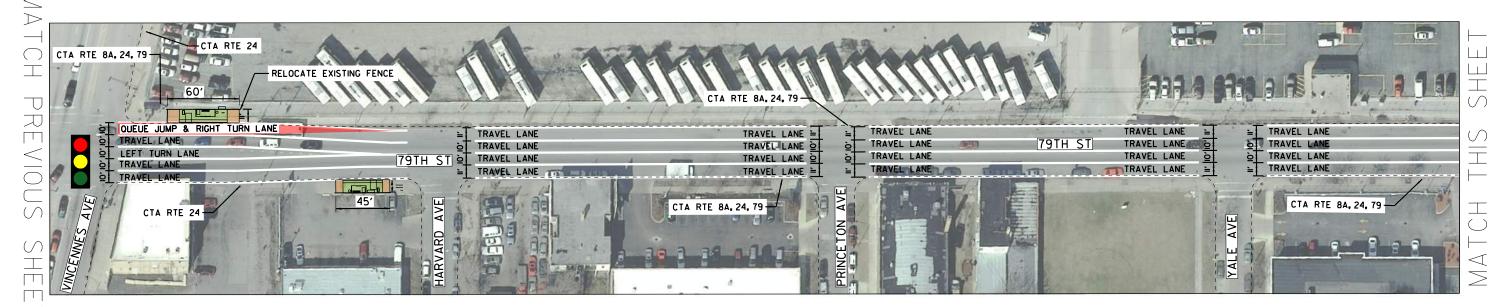
PROPOSED SIDEWALK

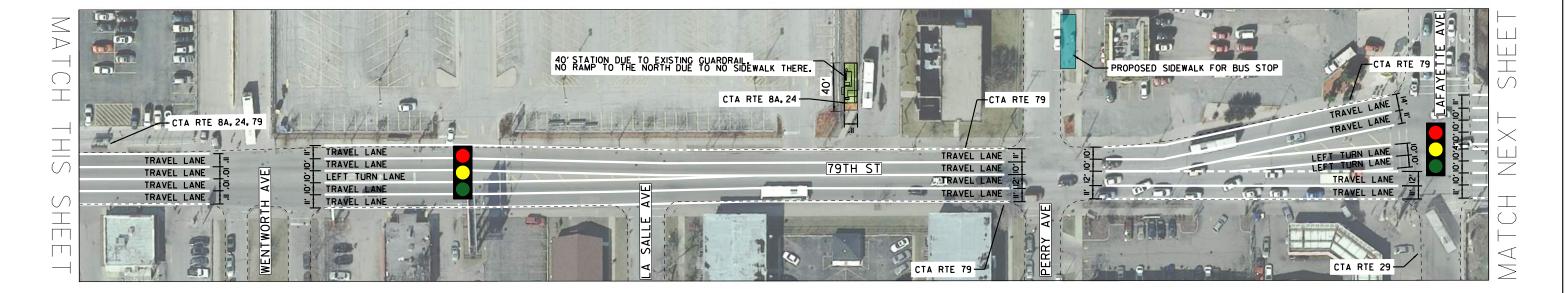
EXISTING BIKE LANE

-	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR	- ALTERNATE 2	F.A. SECTION	COUNTY TOTAL SHEET SHEETS NO.
-	DRAWN - CEJ	AND		.D TO VINCENNES		COOK 9I 59
	CHECKED - HMK	CHICAGO TRANSIT AUTHORITY		D 10 VINCEINIES		CONTRACT NO.
	DATE - 04/03/2019	C11C1100 11(11(31) 11011101(11)	SCALE:  " = 80'		ILLINOIS F	FED. AID PROJECT









EXISTING BIKE LANE

PROPOSED SIDEWALK

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR	R - ALTERNATE 2	F.A. SECTION	COUNTY TOTAL SHEET NO.
	DRAWN - CEJ	AND			NIL.	COOK 9I 60
	CHECKED - HMK	HIND CLUCACO TDANCIT ALITHODITY	79TH STREET - VINCENN	ES TO LAFAYETTE	'	CONTRACT NO.
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'		ILLINOIS F	FED. AID PROJECT







LEGEND

PROPOSED BUS LANE

PROPOSED SIDEWALK

PROPOSED STATION PLATFORM



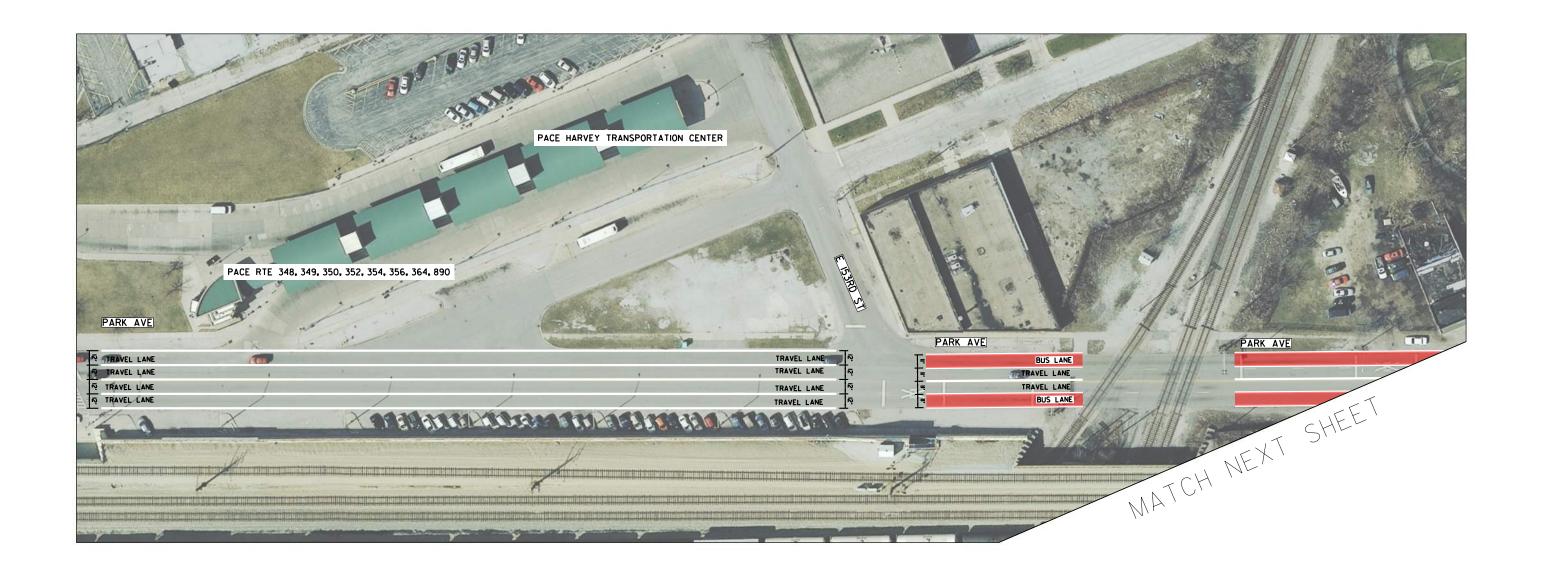
EXISTING BIKE LANE

#### PROPOSED PLATFORM RAMP

DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR	R - ALTERNATE 2	F.A.	SECTION	COUNTY	TOTAL SHEETS	SHEET
DRAWN - CEJ	AND			****		соок	91	61
CHECKED - HMK		79TH STREET - STAT	IE IU WABASA	-		CONTRACT	NO.	
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE:  * = 80'			II I INOIS FEE	AID PROJECT		







EXISTING BIKE LANE

PROPOSED SIDEWALK

DESIGNED - CEJ		PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 3	F.A. SECTION	COUNTY TOTAL SHEET SHEET NO.
DRAWN - CEJ				11122	COOK 9I 62
CHECKED - HMK		HIND CLICACO TDANCIT ALITHODITY	PACE HARVEY TRANSPORTATION CENTER	-	CONTRACT NO.
DATE - 04/03/2019		CHICAGO TRANSIT AUTHORITY	SCALE: I' = 80'	ILLINOIS FED. AI	





#### MATCH PREVIOUS SHEET





### LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

EXISTING BIKE LANE

PROPOSED SIDEWALK

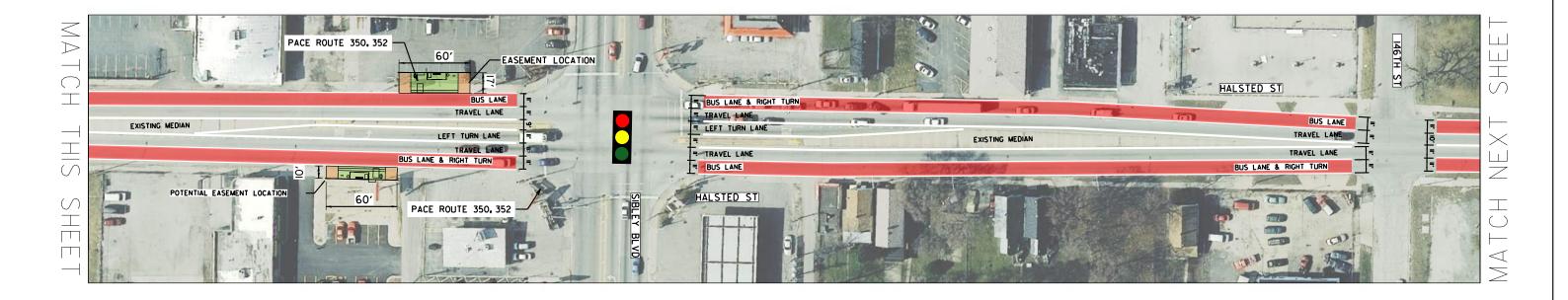
	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 3	F.A. SECTION	COUNTY TOTAL SHEET SHEETS NO.
	DRAWN - CEJ	AND		NIE.	COOK 91 63
	CHECKED - HMK	\ <u>-</u>	152ND TO 150TH & HALSTED STREET		CONTRACT NO.
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'	ILLINOIS FF	ED. AID PROJECT





MATCH PREVIOUS SHE





#### LEGEND

PROPOSED BUS LANE

PROPOSED SIDEWALK

EXISTING BIKE LANE

PROPOSED STATION PLATFORM

#### PROPOSED PLATFORM RAMP

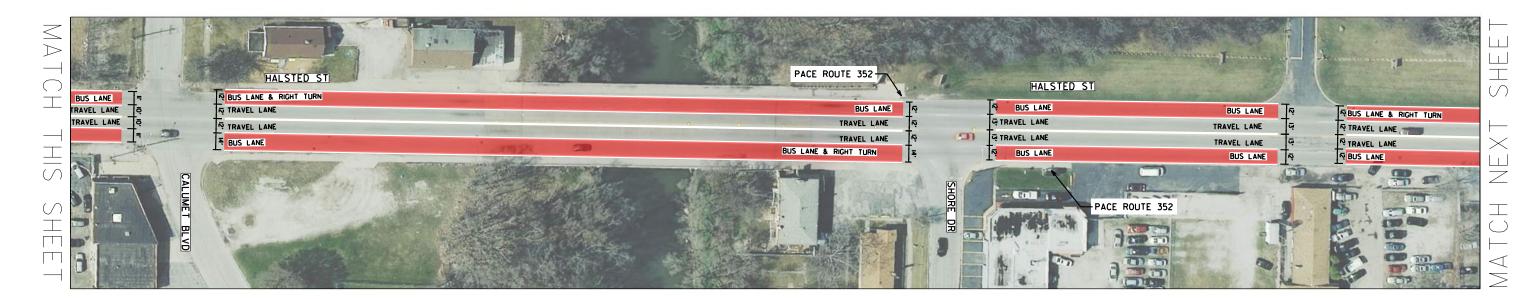
DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 3	F.A.	SECTION	COUNTY	TOTAL SH SHEETS N	HEET
DRAWN - CEJ	AND		1112		соок	aı aı	64
CHECKED - HMK	· <del>-</del>	149TH TO 146TH & HALSTED STREET			CONTRACT	ſ NO.	07
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE:  " = 80'		ILLINOIS FEF	D. AID PROJECT		





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 $\Box$  $\perp$ BUS LANE & RIGHT TURN BUS LANE & RIGHT TURN TRAVEL LANE  $\equiv$ TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE BUS LANE BUS LANE & RIGHT TURN = BUS LANE BUS LANE & RIGHT TURN PACE ROUTE 352



LEGEND

PROPOSED BUS LANE

PROPOSED SIDEWALK

PROPOSED STATION PLATFORM

EXISTING BIKE LANE

PROPOSED PLATFORM RAMP

DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 3	F.A. SECTION	COUNTY TOTAL SHEET
DRAWN - CEJ	AND		NIE.	COOK 9I 65
CHECKED - HMK	HIND CLUCACO TDANICIT AUTHODITY	145TH TO SHORE DR & HALSTED STREET		CONTRACT NO.
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'	ILLINOIS FED. A	









EXISTING BIKE LANE

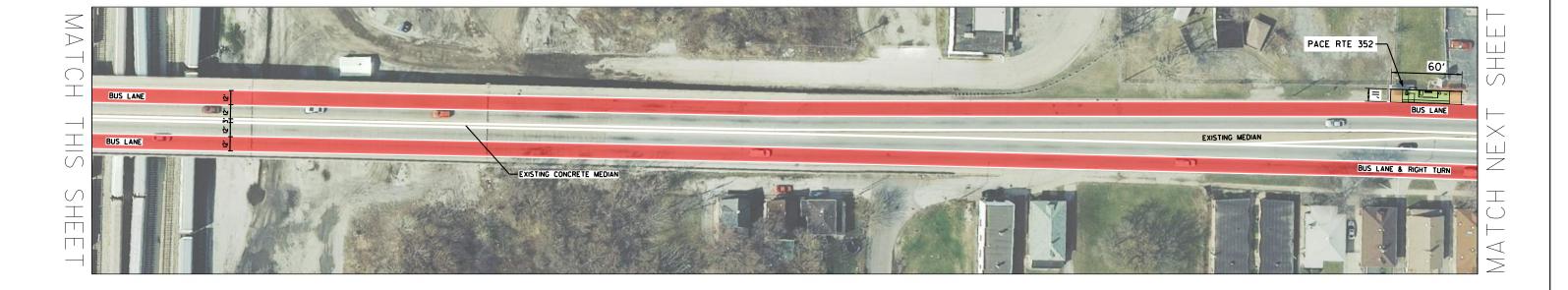
PROPOSED SIDEWALK

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 3		R - ALTERNATE 3	F.A.	SECTION	COUNTY TOTAL SHEET NO.
	DRAWN - CEJ	AND				***************************************		COOK 91 66
	CHECKED - HMK	HIND HIND	STEWART TO 142ND & HALSTED STREET		<u> </u>	CONTRACT NO.		
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'				ILLINOIS F	ED. AID PROJECT





DISTANCE TRANSPORTED TO THE PROPERTY MEDIAN T



## LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

EXISTING BIKE LANE

PROPOSED SIDEWALK

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 3	F.A.	SECTION	COUNTY TOTAL SHEET SHEETS NO.
	DRAWN - CEJ	AND		11123		COOK 91 67
	CHECKED - HMK		142ND TO 138TH & HALSTED STREET			CONTRACT NO.
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'		ILLINOIS FED.	





 $\leq$ 138TH ST HALSTED ST Ш  $\Box$  $\perp$  $\Box$ EXISTING CONCRETE MEDIAN-BUS LANE T M TRAVEL LANE 현 BUS LANE & RIGHT TURN PACE RTE 348-HALSTED ST  $\equiv$ N LEFT TURN LANE TRAVEL LANE EXISTING CONCRETE MEDIAN-BUS LANE & RIGHT TURN TRAVEL LANE RIGHT TURN ONLY BUS LANE To N BUS LANE TRAVEL LANE BUS LANE N TRAVEL LANE TRAVEL LANE BUS LANE & RIGHT TURN TRAVEL LANE BUS LANE  $\triangleleft$ Ĭ POTENTIAL EASEMENT LOCATION  $\geq$ PACE RTE 348 -PACE RTE 352



## LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

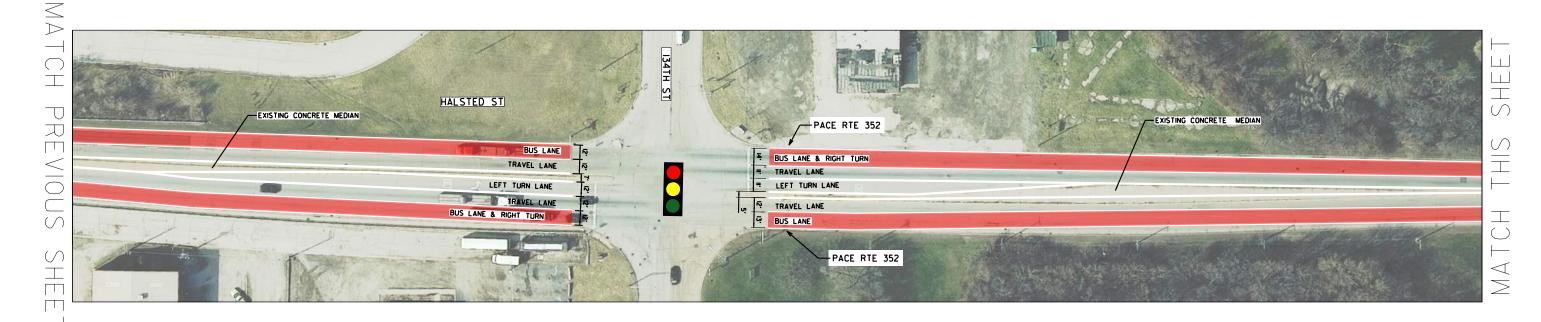
EXISTING BIKE LANE

PROPOSED SIDEWALK

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 3	F.A. SEC	CTION COUNTY TOTAL SHEET
	DRAWN - CEJ	AND			COOK 91 68
	CHECKED - HMK	CHICAGO TRANSIT AUTHORITY	138TH TO 134TH & HALSTED STREET		CONTRACT NO.
	DATE - 04/03/2019	CUICHOO IVHN2II HOIDONIII	SCALE: I" = 80'		ILLINOIS FED. AID PROJECT









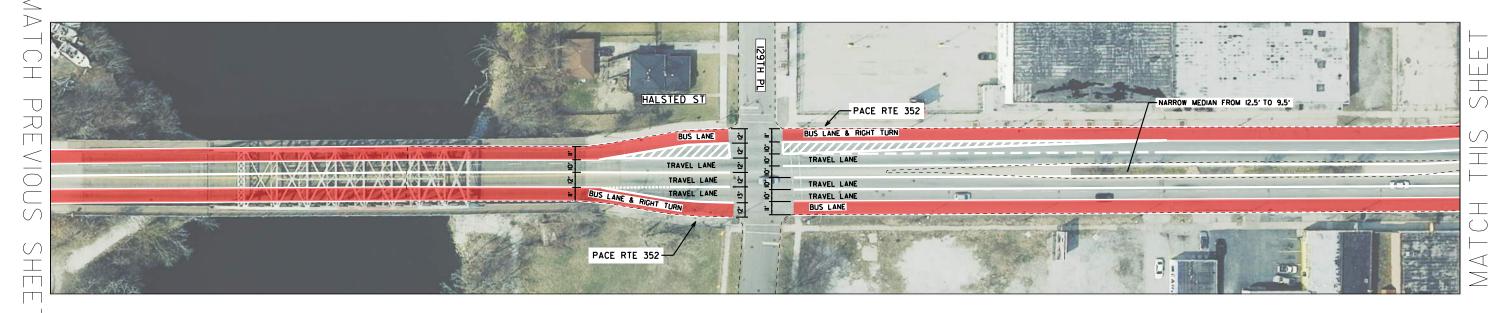
EXISTING BIKE LANE

PROPOSED SIDEWALK

DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 3	F.A. SECTION	N COUNTY	TOTAL SHEET
DRAWN - CEJ	AND		11122	СООК	91 69
CHECKED - HMK	CHICACO TRANCIT AUTHORITY	134TH TO CAL SAG & HALSTED STREET		CONTRAC	T NO.
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'	ILLIN	INOIS FED. AID PROJECT	









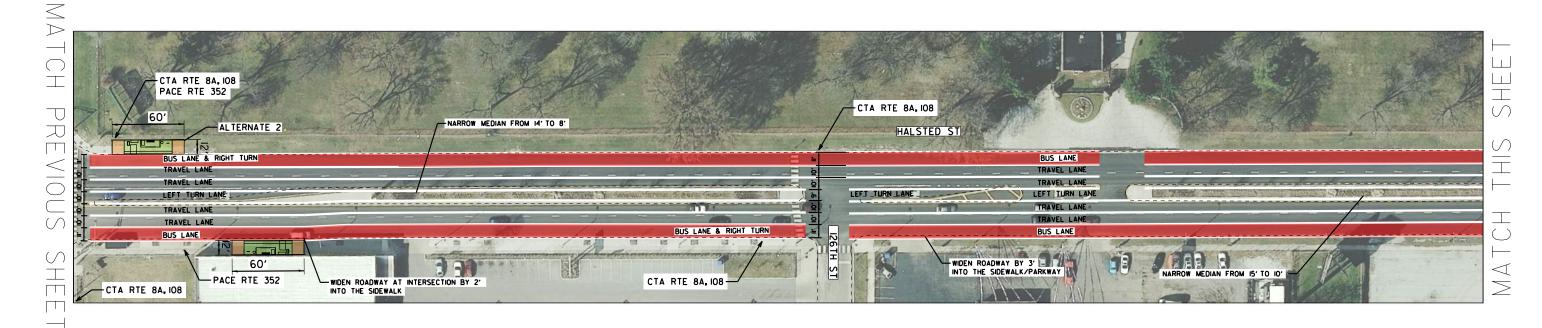
EXISTING BIKE LANE

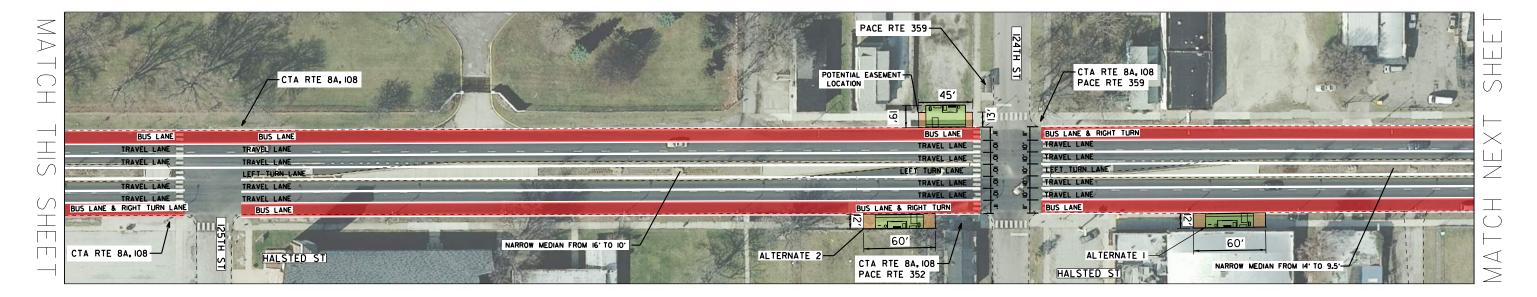
PROPOSED SIDEWALK

DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 3	F.A. SECTION	COUNTY TOTAL SHEET
DRAWN - CEJ CHECKED - HMK	AND	129TH TO 127TH & HALSTED STREET		COOK 91 70
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE:  " = 80'	ILLINOIS F	ED. AID PROJECT









# PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP PROPOSED SIDEWALK EXISTING BIKE LANE

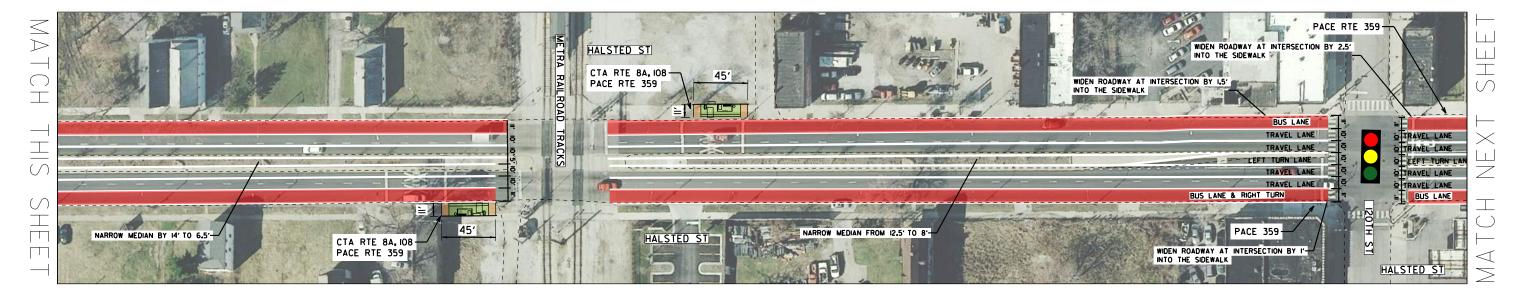
DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 3	F.A. SECTION	COUNTY TOTAL SHEET SHEETS NO.
DRAWN - CEJ CHECKED - HMK	AND	126TH TO 124TH & HALSTED STREET		COOK 91 71
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I' = 80'	ILLINOIS FEC	D. AID PROJECT





MATCH PREVIOUS SHE

WIDEN ROADWAY AT - WIDEN ROADWAY AT INTERSECTION BY 2' - WIDEN ROADWAY AT INTERSECTION BY 2.5'
INTO SIDEWALK/PARKWAY INTO THE SIDEWALK/PARKWAY  $\Box$ WIDEN ROADWAY AT INTERSECTION BY 2'-INTO THE SIDEWALK CTA RTE 8A, 108  $\langle \rangle$ CTA RTE 8A, 108 PACE RTE 359 BUS LANE & RIGHT TURN BUS LANE & RIGHT TURN BUS LANE  $\equiv$ TRAVEL LANE TRAVEL LANE LEFT TURN LANE TRAVEL LANE BUS LANE & RIGHT TURN BUS LANE BUS LANE CTA RTE 8A, 108 NARROW MEDIAN FROM 14' TO 8' PACE RTE 359  $\triangleleft$ WIDEN ROADWAY AT INTERS CTA RTE 8A. 108



#### LEGEND

PROP

PROPOSED BUS LANE

BUS LANE

PROPOSED STATION PLATFORM

RM

PROPOSED PLATFORM RAMP

PROPOSED SIDEWALK

EXISTING BIKE LANE

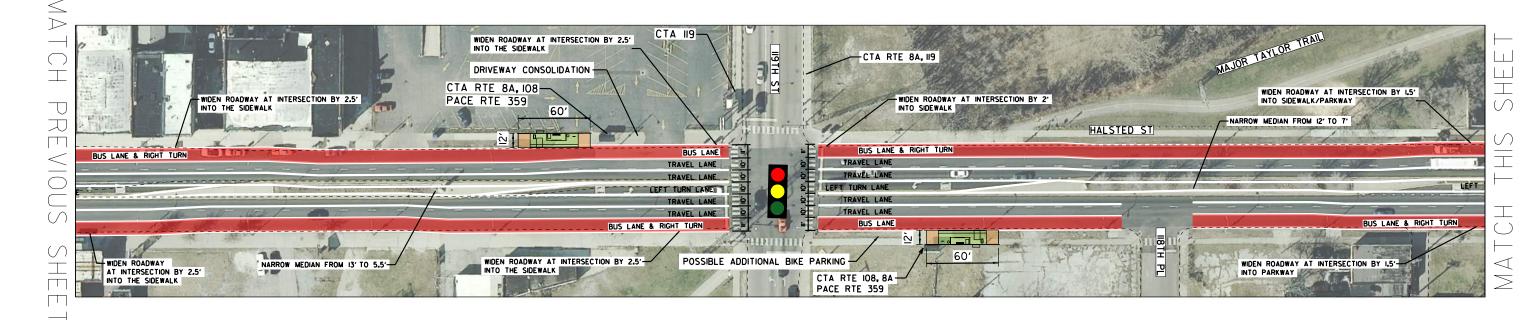
DESIGNED - CEJ	PACE SUBURBAN BUS
DRAWN - CEJ	AND
CHECKED - HMK	
DATE - 04/03/20	.   CHICAGO TRANSIT AUTHORITY

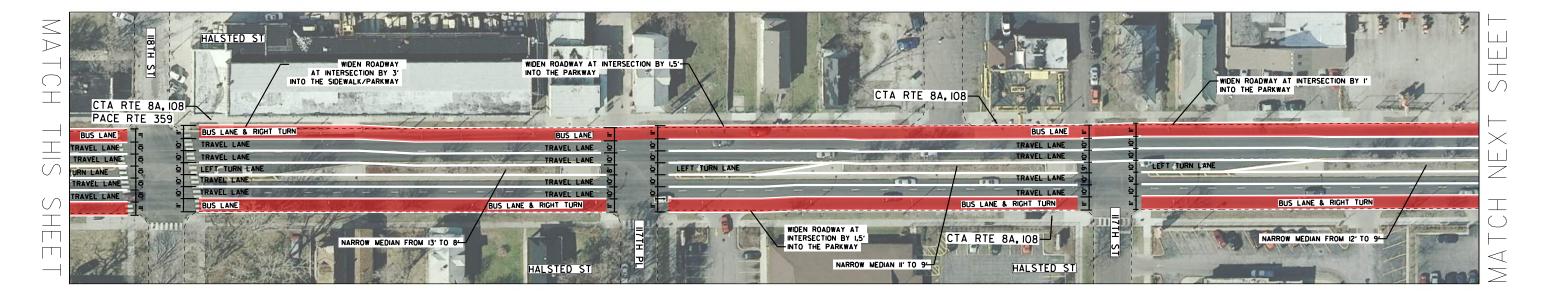
HAI	LSTE	BUS	CORR	IDOR	- ALT	ERNATE	3
1.	23RD	TO 12	20TH	& HA	ALSTED	STREET	
SCALE: I" = 80'							

Ė.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		соок	91	72
		CONTRACT	NO.	
	ILLINOIS FED. AID	PROJECT		









NOTE: THERE IS NO GIS DATA FOR THE MEDIANS FROM 119TH TO 98TH ST. ANY NARROWING MEASUREMENTS ARE ESTIMATED.

#### LEGEND

PROPOSED BUS LANE

PROPOSED SIDEWALK

EXISTING BIKE LANE

PROPOSED STATION PLATFORM

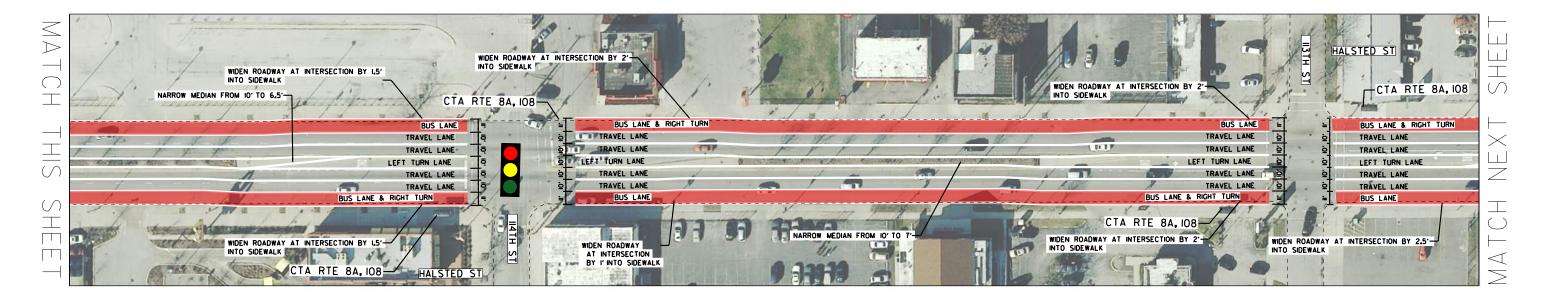
PROPOSED PLATFORM RAMP

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 3	F.A. SECTION	COUNTY TOTAL SHEET
	DRAWN - CEJ	AND		NIL.	COOK 91 73
	CHECKED - HMK	· ·	119TH TO 117TH & HALSTED STREET	'	CONTRACT NO.
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE:  * = 80'	ILLINOIS FED.	AID PROJECT









NOTE: THERE IS NO GIS DATA FOR THE MEDIANS FROM 119TH TO 98TH ST. ANY NARROWING MEASUREMENTS ARE ESTIMATED.

PROPOSED SIDEWALK

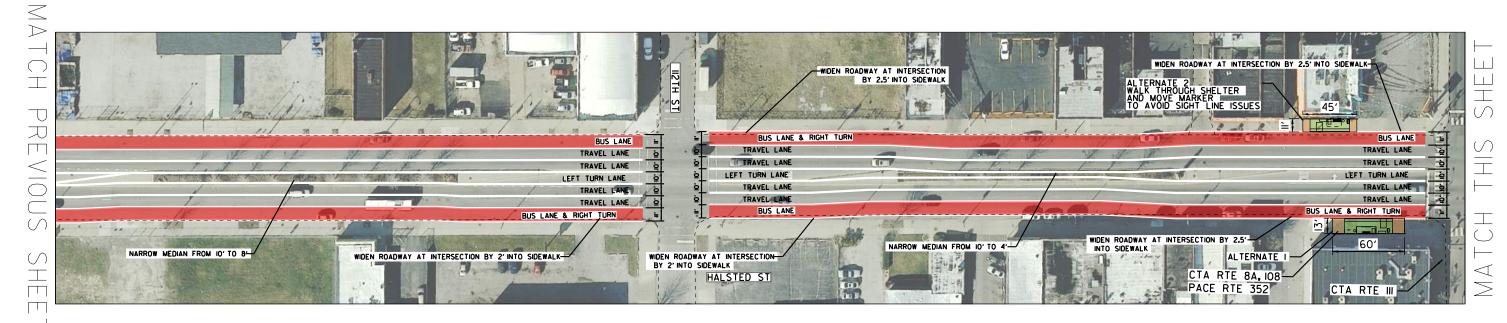
### LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

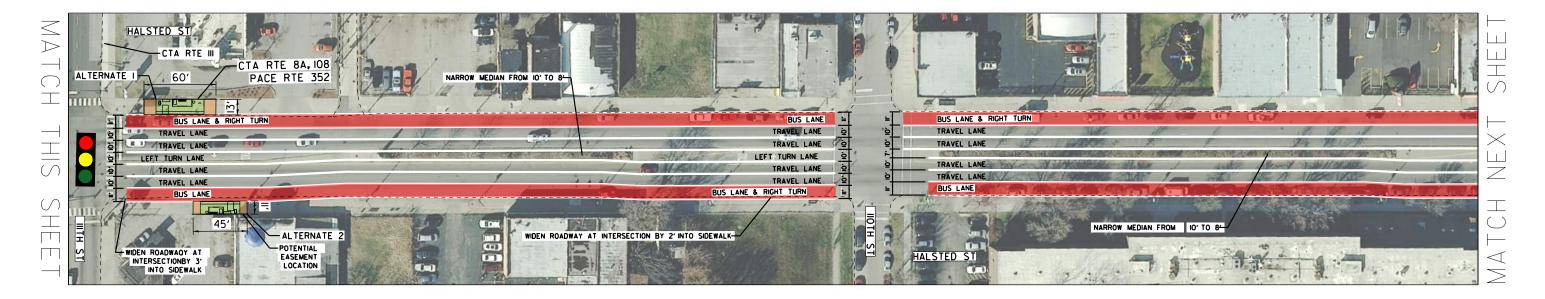
EXISTING BIKE LANE

	DESIGNED - CEJ		PACE SUBURBAN BUS AND	HALSTED BUS CORRIDOR - ALTERNATE 3		F.A. RTF.	SECTION	COUNTY	TOTAL SHEET SHEETS NO.	
	DRAWN - CEJ								СООК	91 74
	CHECKED - HMK			116TH TO 113TH & HALSTED STREET				CONTRACT	NO.	
	DATE - 04/03/2019		CHICAGO TRANSIT AUTHORITY	SCALE:  " = 80'				ILLINOIS F	ED. AID PROJECT	









PROPOSED PLATFORM RAMP

NOTE: THERE IS NO GIS DATA FOR THE MEDIANS FROM 119TH TO 98TH ST. ANY NARROWING MEASUREMENTS ARE ESTIMATED.

### LEGEND

PROPOSED BUS LANE

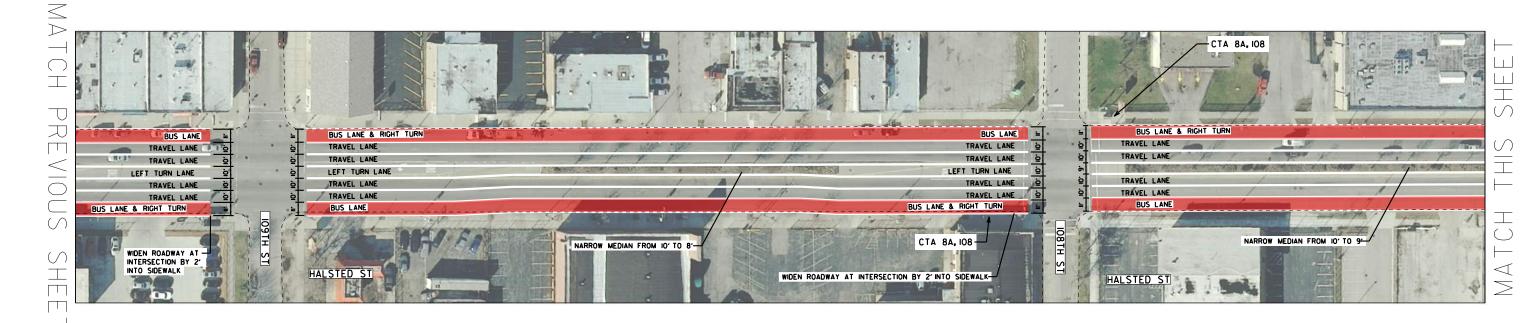
PROPOSED STATION PLATFORM

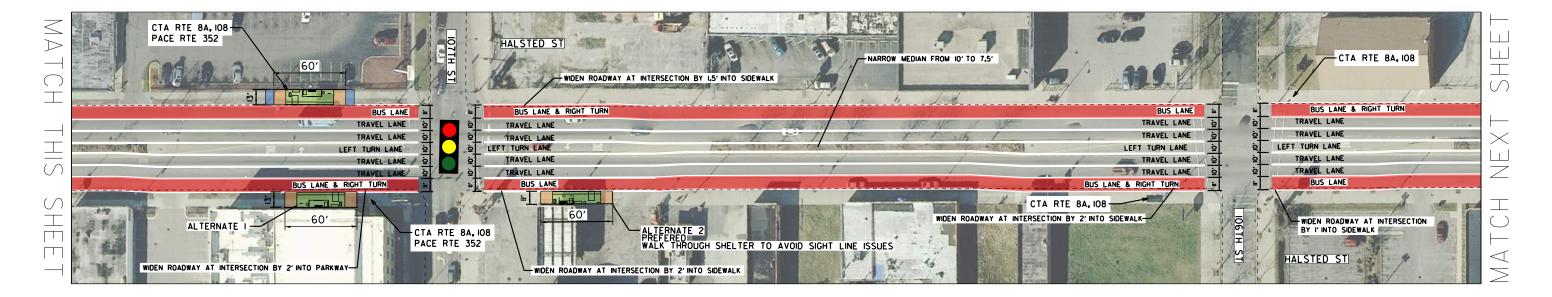
PROPOSED SIDEWALK EXISTING BIKE LANE

			I = . I	
DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 3	RTE. SECTION	COUNTY TOTAL SHEET
DRAWN - CEJ			NIE.	COOK 91 75
CHECKED - HMK	AND	112TH TO 110TH & HALSTED STREET		CONTRACT NO.
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'	ILLINOIS FED. A	









PROPOSED PLATFORM RAMP

NOTE: THERE IS NO GIS DATA FOR THE MEDIANS FROM 119TH TO 98TH ST. ANY NARROWING MEASUREMENTS ARE ESTIMATED.

#### LEGEND

PROPOSED BUS LANE

PROPOSED SIDEWALK

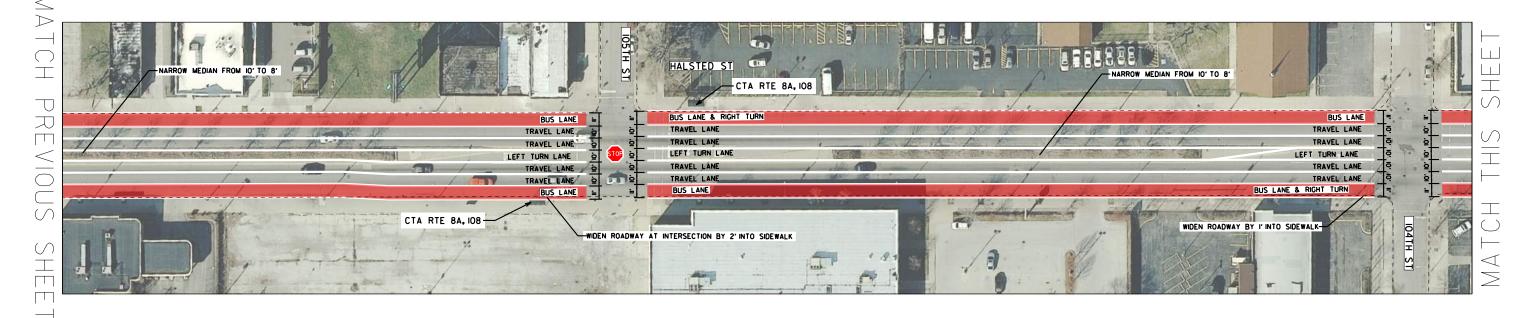
PROPOSED STATION PLATFORM

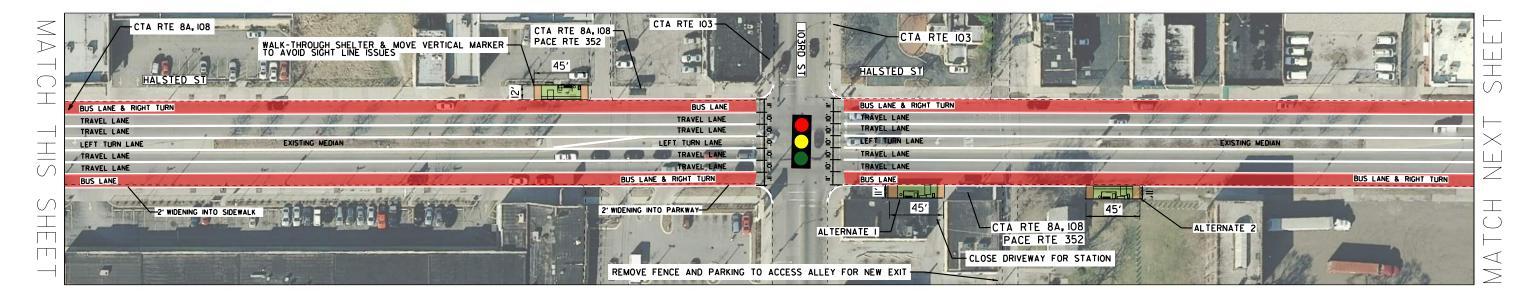
EXISTING BIKE LANE

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR	R - ALTERNATE R	F.A. RTE.	SECTION	COUNTY	TOTAL	SHEET
	DRAWN - CEJ	AND					соок	91	76
_	CHECKED - HMK		109TH TO 106TH & HALSTED STREET			CO'		NO.	
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'			ILLINOIS FED. AI	D PROJECT		









NOTE: THERE IS NO GIS DATA FOR THE MEDIANS FROM 119TH TO 98TH ST. ANY NARROWING MEASUREMENTS ARE ESTIMATED.

#### LEGEND

PROPOSED BUS LANE

PROPOSED SIDEWALK

PROPOSED STATION PLATFORM

EXISTING BIKE LANE

PROPOSED PLATFORM RAMP

	DESIGNED - CEJ		PACE SUBURBAN BUS	HALSTED BUS CORRIDOR	P - ALTERNATE 3	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET
	DRAWN - CEJ		AND	105TH TO 103RD & HA		N.I.Z.		соок	91	77
_	CHECKED - HMK		CHICAGO TRANSIT AUTHORITY	ער אַ מאַכּשוּן טו חוכשוּן אַ ח	ILSTED STREET			CONTRACT	NO.	
	CHECKED - HMK		CHICHOO INHNSII HOIHONIII	SCALE: I" = 80'			ILLINOIS FED. AI	D PROJECT		





 $\triangleright$ IO2ND ST CTA RTE 8A, 108 BUS LANE & RIGHT TURN BUS LANE & RIGHT TURN BUS LANE BUS LANE TRAVEL LANE LEFT TURN LANE LEFT TURN LANE LEFT TURN LANE TRAVEL LANE BUS LANE BUS LANE BUS LANE & RIGHT TURN  $\bigcirc$ CTA RTE 8A. IO8 WIDENING INTO SIDEWALK WIDEN ROADWAY BY I'INTO SIDEWALK  $\bigcirc$  $\Box$ CTA RTE 8A, 108 

HALSTED ST CTA RTE 8A, 108-HALSTED ST CTA RTE 8A, 108 -PACE 352  $\perp$ BUS LANE BUS LANE BUS & RIGHT BUS LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE LEFT TURN LANE E LEFT TURN  $\equiv$ LEFT TURN LANE LEFT TURN LANE Ш TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE = TRAVEL LANE ■ BUS LANE BUS LANE & RIGHT TURN BUS LANE BUS LANE RIGHT TURN LANE  $\perp$ CTA RTE 8A, 108 4 CTA RTE 8A, 108 ADD SIGNAGE AND STRIPING MINIMIZE WEAVING  $\triangleleft$ 

NOTE: THERE IS NO GIS DATA FOR THE MEDIANS FROM 119TH TO 98TH ST. ANY NARROWING MEASUREMENTS ARE ESTIMATED.

#### LEGEND

PROPOSED BUS LANE

PROPOSED STATION PLATFORM



PROPOSED PLATFORM RAMP

PROPOSED SIDEWALK

EXISTING BIKE LANE

#### DESIGNED - CEJ PACE SUBURBAN BUS DRAWN - CEJ CHECKED -CHICAGO TRANSIT AUTHORITY DATE - 04/03/2019

HALS	TED BU	JS CORI	RIDOR -	ALTERN	ATE 3
102	OT DMS	99TH	& HALS	STED STR	EET
SCALE:  " = 80'					

RTE.	SECT	COUNTY	TOTAL SHEETS	SHEET NO.		
				COOK	91	78
			CONTRACT	NO.		
		ILLINOIS	PROJECT			

DRAFT FOR REVIEW

 $\perp$ 

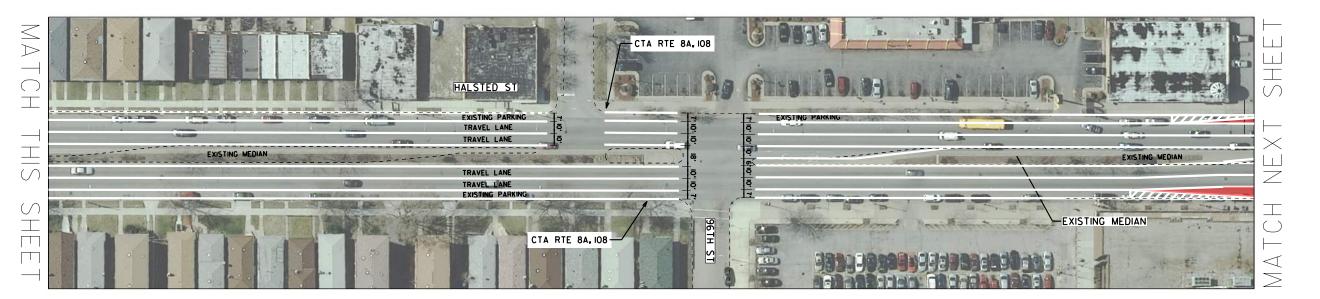
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 $\leq$ CTA RTE 84, 108  $\perp$ SUS LANE BUS LANE & RIGHT TURN BUS LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE LEFT TURN LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE (3.1) TRAVEL LANE TRAVEL LANE TRAVEL LANE BUS LANE BUS LANE WALK-THROUGH SHELTER 45' CTA RTE 8A, 108  $\triangleleft$  $\Box$ CTA RTE 84.108 OTENTIAL EASEMENT LOCATION PACE RTE 352



NOTE: THERE IS NO GIS DATA FOR THE MEDIANS FROM 119TH TO 98TH ST. ANY NARROWING MEASUREMENTS ARE ESTIMATED.

#### LEGEND

PROPOSED BUS LANE

PROPOSED SIDEWALK

EXISTING BIKE LANE

PROPOSED STATION PLATFORM

#### PROPOSED PLATFORM RAMP

DESIGNED - CEJ	PACE SUBURBAN BUS
DRAWN - CEJ	AND
CHECKED - HMK	
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY

			R - ALTERNATE	3
98	BTH TO 9	96TH & HA	ALSTED STREET	
SCALE:  " = 80'				

SECTION		COUNTY	TOTAL SHEETS	SHEET NO.
		соок	91	79
		CONTRACT	NO.	
ILLINOIS	FED. AID	PROJECT		

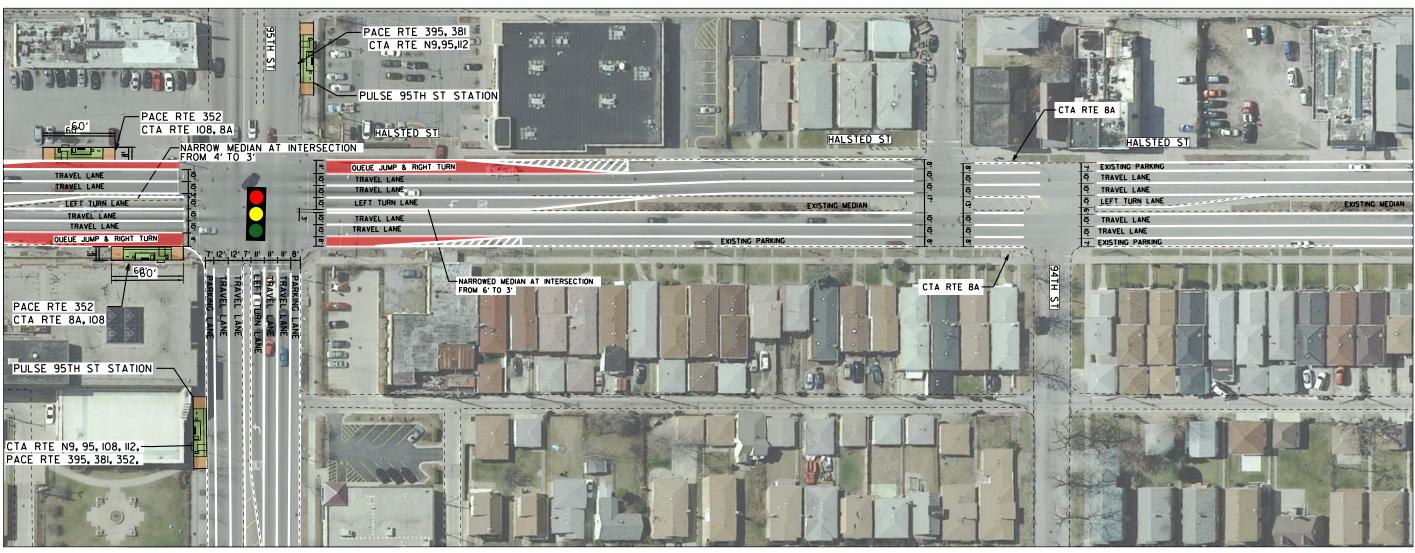


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PROPOSED SIDEWALK



MATCH SHEET 86

# PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

EXISTING BIKE LANE

-	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTE	ERNATE 3	RTE. SECTION	COUNTY TO	TAL SHEET EETS NO.
	DRAWN - CEJ	AND				COOK	91 80
	CHECKED - HMK	CHICAGO TRANSIT AUTHORITY	95TH TO 94TH & HALSTED STREET		•	CONTRACT NO	D.
	DATE - 04/03/2019	CHICHOU INHINSII HUIHUNIII	SCALE: I" = 80'		ILLINOIS FEI	D. AID PROJECT	



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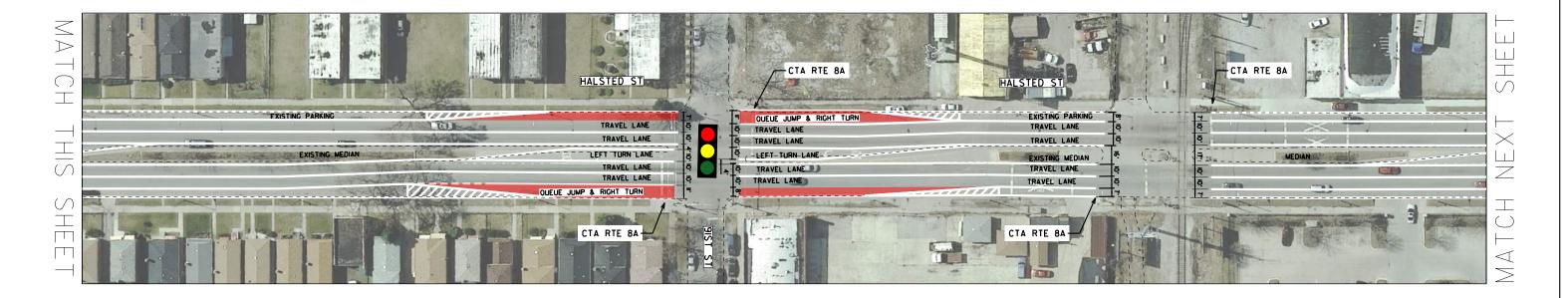
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 $\leq$  $\Box$ HALSTED ST  $\Box$ Ž M EXISTING PARKING © EXISTING PARKING

TRAVEL LANE FXISTING PARKING TRAVEL LANE TRAVEL LANE TRAVEL LANE 5 TRAVEL LANE TRAVEL LANE LEFT TURN LANE LEFT TURN LANE LEFT TURN LANE TRAVEL LANE EXISTING PARKING EXISTING PARKING  $\bigcirc$  $\triangleleft$ CTA RTE 8A HALSTED ST



#### LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

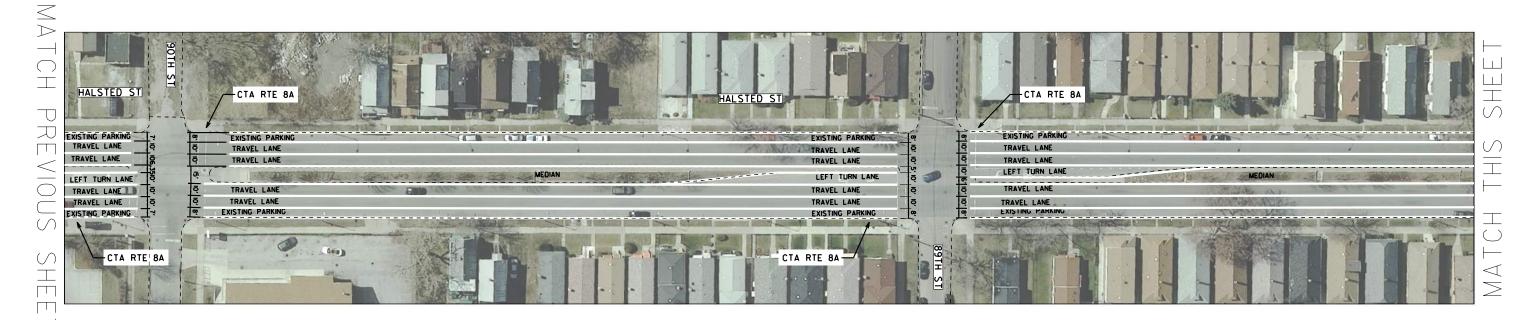
EXISTING BIKE LANE

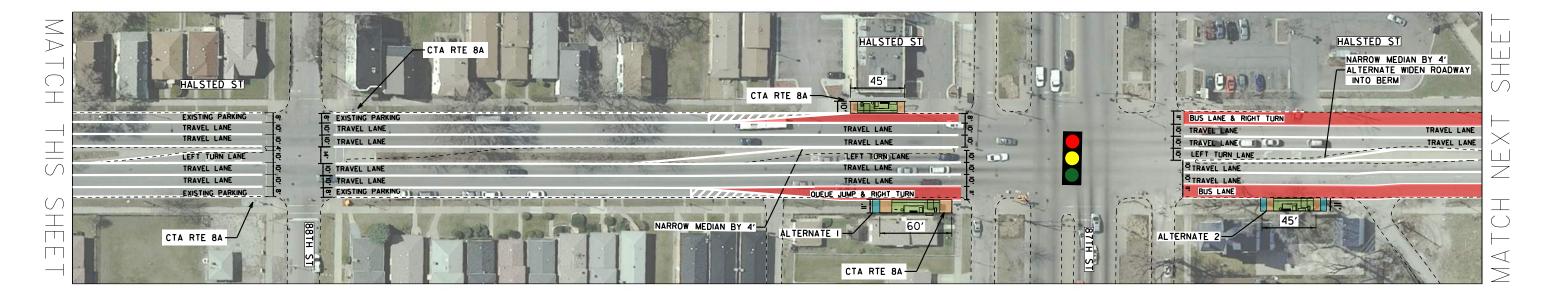
PROPOSED SIDEWALK

		DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 3	F.A.	SECTION	COUNTY TOTAL SHEET SHEETS NO.
		DRAWN - CEJ	AND				COOK 91 81
		CHECKED - HMK	HIND CHICACO TRANCIT AUTHORITY	93RD TO 91ST & HALSTED STREET			CONTRACT NO.
DATE - 04/03/2019		DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE:   = 80'		ILLINOIS FED.	AID PROJECT









## LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

EXISTING BIKE LANE

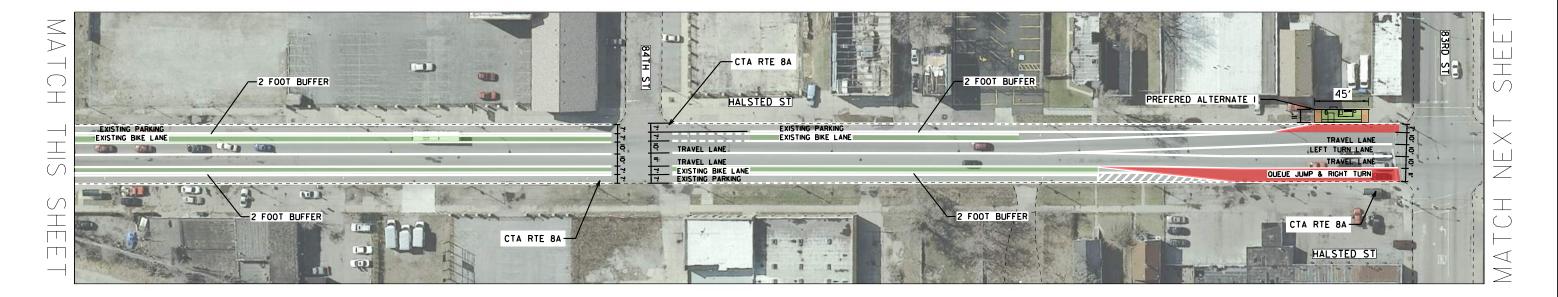
PROPOSED SIDEWALK

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 3	F.A.	SECTION	COUNTY TOTAL SHEET SHEETS NO.
	DRAWN - CEJ	AND		1112		COOK 9I 82
	CHECKED - HMK	HIND CLICACO TDANCIT ALITHODITY	90TH TO 87TH & HALSTED STREET			CONTRACT NO.
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I' = 80'		ILLINOIS FED.	AID PROJECT









# LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

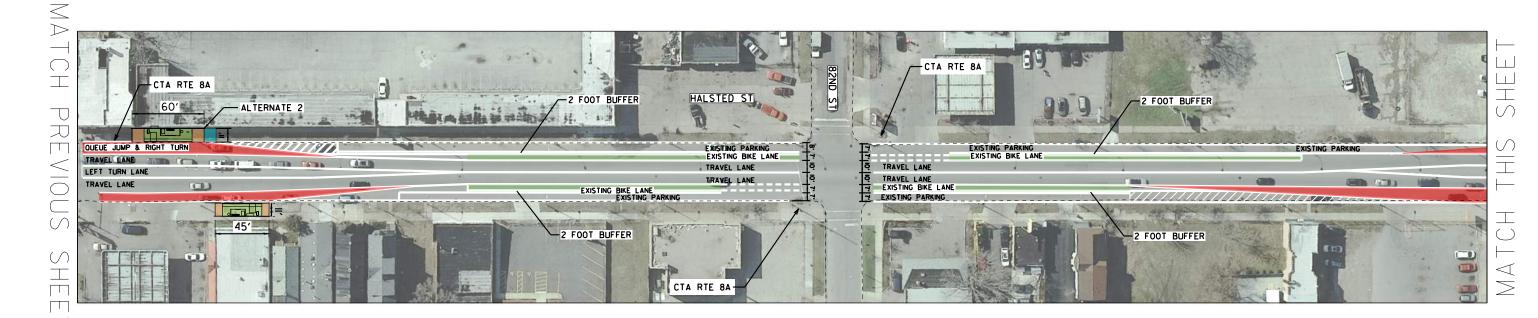
EXISTING BIKE LANE

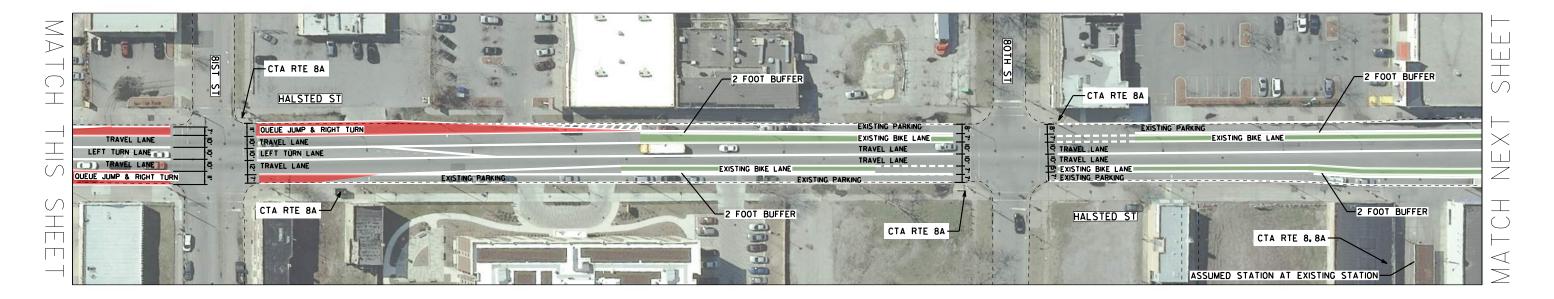
PROPOSED SIDEWALK

DESIGNED -	CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR	R - ALTERNATE 3	F.A. RTF.	SECTION	COUNTY	TOTAL SHEET SHEETS NO.
DRAWN -	CEJ	AND	VINCENNES TO 83RD &		*******		соок	91 83
CHECKED -	HMK	CHICACO TDANCIT AHTHODITY	ATINCEININES IO OSUD &	HHLSIED SINEE!			CONTRACT	NO.
DATE -	04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE:  " = 80'			ILLINOIS FED. AI	D PROJECT	









## LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

EXISTING BIKE LANE

PROPOSED SIDEWALK

	DESIGNED - CEJ	PACE SUBURBAN BUS	на с	TED BUS CORRIDOR	R - ALTERNATE 3	F.A. RTF	SECTION	COUNTY TOTAL SHEET NO.
	DRAWN - CEJ	AND						COOK 91 84
	CHECKED - HMK	HIND CLICACO TDANCIT ALITHODITY	821	ND TO 80TH & HA	LSIED SIREEI			CONTRACT NO.
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'				ILLINOIS F	FED. AID PROJECT





MATCH PREVIOUS SHEET

PROPOSED SIDEWALK



MATCH SHEET 89

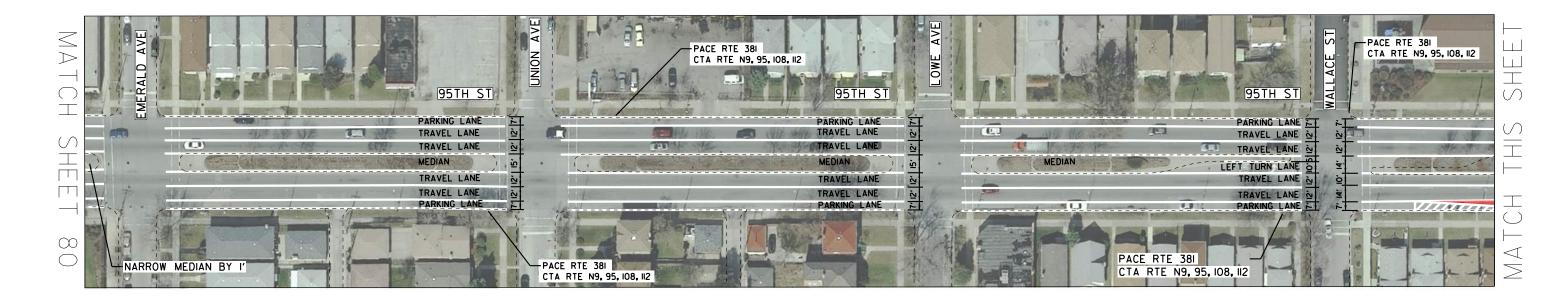
## LEGEND PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

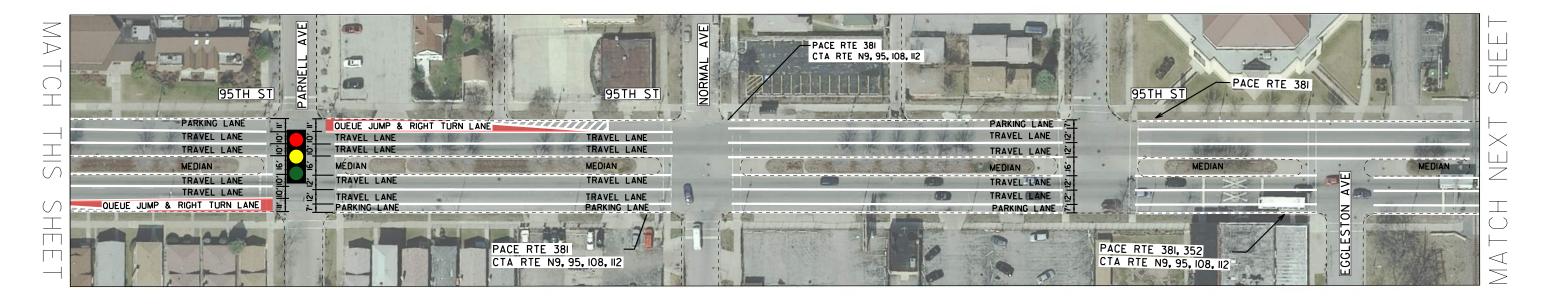
EXISTING BIKE LANE

DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 3	F.A. SECTION	COUNTY TOTAL SHEET
DRAWN - CEJ	AND	79TH & HALSTED STREET	11.12	COOK 9I 85
CHECKED - HMK	CHICAGO TRANSIT AUTHORITY	/ JIN & NHLSIEU SINEE!		CONTRACT NO.
DATE - 04/03/2019	CUICHOO IVHN2II HOIUUNIII	SCALE: I" = 80'	ILLINOIS FED.	. AID PROJECT









PROPOSED PLATFORM RAMP

LEGEND

PROPOSED BUS LANE

PROPOSED SIDEWALK

LANE

S LANE PROPOSED STATION PLATFORM

EXISTING BIKE LANE

DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR	- ALTERNATE 3	F.A.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
DRAWN - CEJ	AND		D TO EGGLESTON			СООК	91	86
CHECKED - HMK	CHICAGO TRANSIT AUTHORITY		D TO LOOLLSTON			CONTRACT	NO.	
DATE - 04/03/2019	CHICAGO HANGII AOTHONITI	SCALE: I" = 80'			ILLINOIS FED. AI	ID PROJECT		





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PACE RTE 381, 352 PACE RTE 381 CTA RTE N9, 95, 108, 112 CTA RTE N9, 95, 108, 112 PARKING LANE PARKING LANE TRAVEL LANE  $\leq$ TRAVEL LANE TRAVEL LANE TRAVEL LANE TRAVEL LANE : TRAVEL LANE : PARKING LANE TRAVEL LANE  $\bigcup$ PARKING LANE PARKING LANE PACE RTE 381 CTA RTE N9, 95, 108, 112



PROPOSED PLATFORM RAMP

LEGEND

PROPOSED BUS LANE

OPOSED BUS LANE PROPOSED STATION PLATFORM

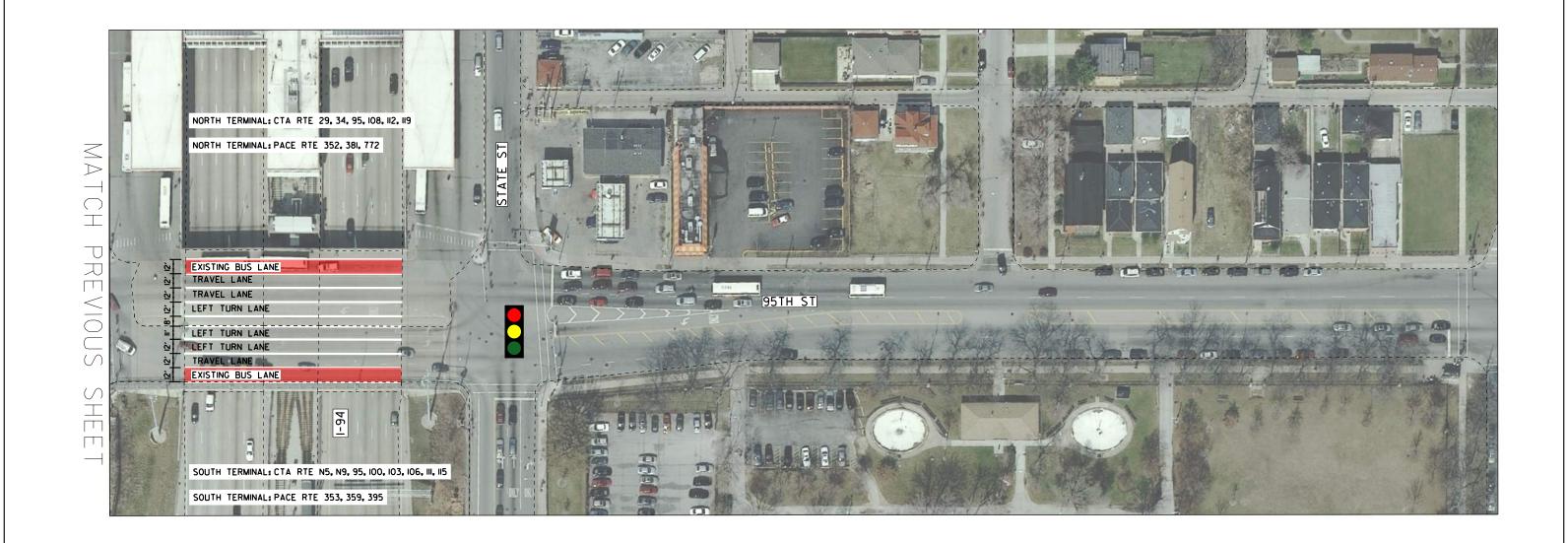
PROPOSED SIDEWALK

EXISTING BIKE LANE

DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR	R - ALTERNATE 3	F.A. RTE.	SECTION		TOTAL S	SHEET
DRAWN - CEJ	AND					соок	91	87
CHECKED - HMK		95TH STREET - HARVAR	RD TO LAFAYETTE			CONTRACT	NO.	
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'			ILLINOIS FED. AI	PROJECT		







LEGEND

PROPOSED BUS LANE

PROPOSED SIDEWALK



PROPOSED STATION PLATFORM

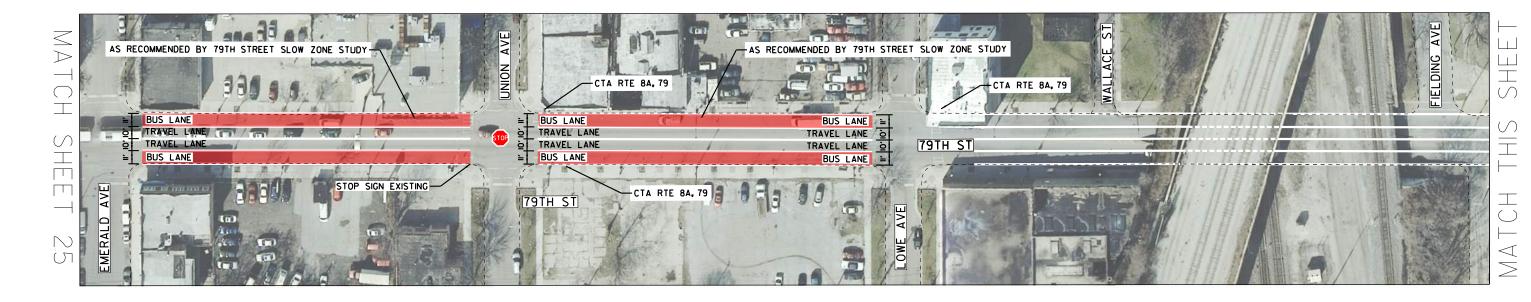


PROPOSED PLATFORM RAMP

DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR	R - ALTERNATE R	F.A. RTE.	SECTION	COUNTY S	TOTAL SHEET SHEETS NO.
DRAWN - CEJ	AND			******		соок	91 88
CHECKED - HMK		95TH STREET	AT 1-94			CONTRACT N	NO.
DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'			ILLINOIS FED. AIL	D PROJECT	









PROPOSED PLATFORM RAMP

LEGEND

PROPOSED BUS LANE

PROPOSED SIDEWALK

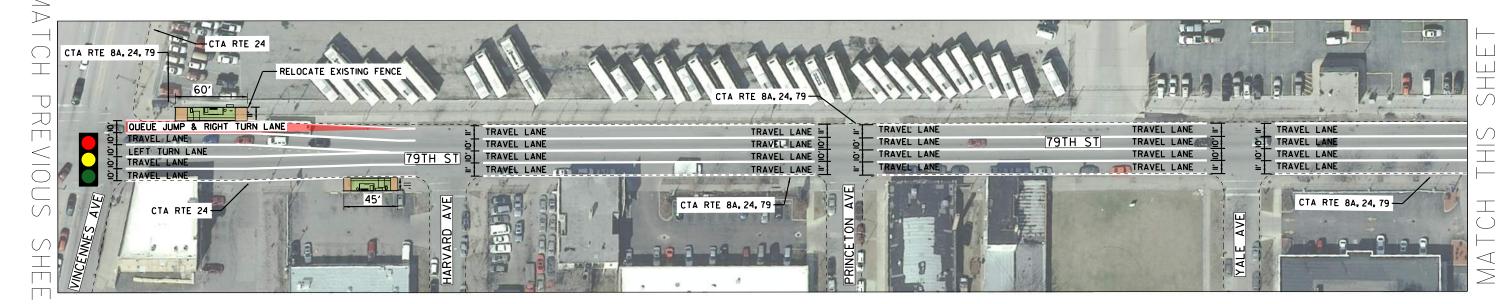
EXISTING BIKE LANE

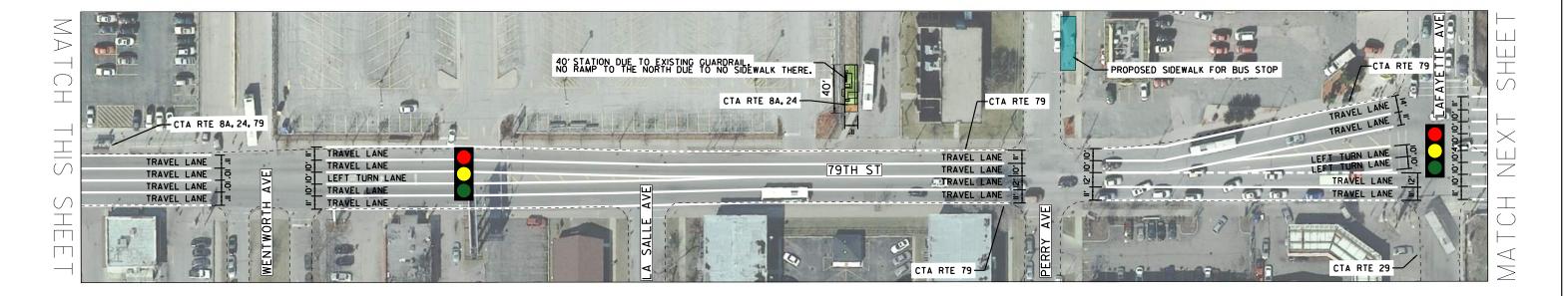
PROPOSED STATION PLATFORM

DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR	R - ALTERNATE 3	F.A.	SECTION COUNT	Y TOTAL SH	SHEET
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DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'			II LINOIS FED. AID PROJECT		









## PROPOSED BUS LANE PROPOSED STATION PLATFORM PROPOSED PLATFORM RAMP

EXISTING BIKE LANE

PROPOSED SIDEWALK

	DESIGNED - CEJ	PACE SUBURBAN BUS	HALSTED BUS CORRIDOR - ALTERNATE 3	F.A.	SECTION		TOTAL SHEET SHEETS NO.
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	CHECKED - HMK	HIND CHICACO TRANCIT AUTHORITY	79TH STREET - VINCENNES TO LAFAYETTE			CONTRACT	NO.
	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'		ILLINOIS FED	. AID PROJECT	







LEGEND

PROPOSED BUS LANE

PROPOSED SIDEWALK

EXISTING BIKE LANE

PROPOSED STATION PLATFORM

### PROPOSED PLATFORM RAMP

	DESIGNED - CEJ	PACE SUBURBAN BUS	на с	TED BUS CORRIDOR	R - ALTERNATE 3	F.A. RTF.	SECTION	COUNTY	TOTAL SHEETS	SHEET
	DRAWN - CEJ	AND						соок	91	91
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	DATE - 04/03/2019	CHICAGO TRANSIT AUTHORITY	SCALE: I" = 80'				ILLINOIS FED. A	AID PROJECT		



### Appendix B: Corridor Advisory Group Meeting #2 Meeting Notes

Tuesday, October 16, 2018 11:00 AM – 1:00 PM West Pullman Library

The second Corridor Advisory Group (CAG) Meeting for the South Halsted Bus Corridor Enhancement Project took place on Tuesday, October 16, 2018, at 11 AM at West Pullman Library, 30 W 119th St, Chicago, IL 60643. Eighteen CAG members, including representatives from three ward offices, three municipalities and two state districts, were in attendance. All CAG members and project team members in attendance can be found on page 4. CAG members were provided a fact sheet and a copy of the PowerPoint presentation upon entering the meeting.

The meeting began with Sukmeke Watkins, CTA Government and Community Relations, providing an overview of the project and reviewing the meeting agenda. Jeff Sangillo, CDM Smith, continued with a recap of CAG Meeting #1, project status, and goals for this CAG meeting. Mr. Sangillo then presented a high-level overview of the contents of the Purpose and Need Statement and received input from the CAG. He added that the document would be provided to the CAG for review and additional input within the next few weeks.

Next, Mr. Sangillo discussed the current improvement program (Transit Signal Priority and Optimization) before providing an in-depth review of the physical improvement alternatives and the associated measures of effectiveness. He also discussed potential station improvements and limited stop service.

Following discussion on the improvement alternatives, Steve Goodreau, CDM Smith, presented the preliminary alternative analysis and decision matrix. He introduced the small group discussion activity, in which feedback was requested on the measures of effectiveness, potential additional measures, and a prioritization of these measures. Each group received an alternatives handout, blank matrix, and a matrix comment form to aid in providing feedback on the measures of effectiveness.

Small group discussion occurred for approximately twenty minutes, prior to reconvening and reporting out on the discussions. Emily Drexler, CTA Project Manager, then reviewed stop spacing and bus operations to elicit additional feedback from the CAG. Prior to concluding the CAG meeting, Mr. Goodreau provided a brief review of next steps, which includes reviewing CAG comments and drafting recommended improvements.



These recommended improvements will be shared with the CAG at the final meeting in December<sup>1</sup>, prior to providing a final report in January 2019<sup>2</sup>.

A comments summary and action items are included on the next page. Raw comments are included at the end of this document.

#### Summary

Lively discussion occurred throughout the meeting. A few themes arose, including the following:

- Positive reception to improved transit reliability, travel times, and conditions of bus stops
- Concern about the removal of parking in the corridor, specifically near busy commercial areas and in residential areas where garages may not be present (Interest in seeing current parking plans, including locations of paid parking)
- Potential interest in a bus lane in locations where parking spots are underutilized throughout the day, or where businesses open after AM peak hour travel
- Mixed reactions as to whether bike lanes are used along the corridor and if expansion would be advisable
- Interest in economic development opportunities in the area and understanding how this would be affected by the alternatives
- Recommendation for removal of grant opportunities from the decision matrix and the potential for other grants besides Federal Small Starts to be pursued
- Interest in a further review of bus ridership/person throughput and business hours in the corridor where CTA bus service ends at 8:30pm

#### **Action Items**

- Send Purpose and Need Statement
- Provide list of the 22 intersections where queue jumps could potentially be located
- Review roadway configuration to confirm typical sections
- Provide areas with paid parking in corridor to CDOT
- Provide parking inventory to CAG members
- Review potential for stop near 134th Street because of connection to Major Taylor Trail
- Take into consideration the "<u>Thrive Zone</u>" from 111<sup>th</sup> to 117<sup>th</sup>, both in planning and messaging of project

<sup>&</sup>lt;sup>1</sup> It was determined that the CAG meeting would be held in January 2019

<sup>&</sup>lt;sup>2</sup> Final report is anticipated in February 2019



- Potentially create a table including intersections impacted by queue jumps, parking spaces (and type of parking) that would be impacted, and in which ward or community the spaces are located
- Potential outreach to local entities (ie: Equiticity) for more input on the potential improvements and bike lanes















CAG Member in Attendance	Organization
Representative Justin Slaughter	House District 27
Quentin Scott	House District 34
Sharron McCoy	Ward 17
James Ramos	Ward 21
Domini Gamble	Ward 21
Chester Wilson	Ward 34
Ronald E. Smith	Consultant to: City of Harvey, Village of Dixmoor, Village of Calumet Park
Nick Haddad	IDOT
Tomo Music	Cook County Dept. of Transportation and Highways
Brenda McGruder	CDOT
Peter Fahrenwald	RTA
Allison Buchwach	Metra
Leslie Phemister	South Suburban Mayors & Managers Association
Dorian Johnson	Far South CDC
Kindy Kruller	Cook County Forest Preserve
Martin Menninger	Chicago Metropolitan Agency for Planning
Audrey Wennick	Metropolitan Planning Council
Julia Gerasimenko	Active Transportation Alliance

Project Team Member in Attendance	Organization
Emily Drexler	CTA
Jennifer Henry	CTA
Sukmeke Watkins	CTA
Paris Tyler	CTA
Charlotte O'Donnell Obodzinski	Pace
Jessica Rybarczyk	Pace
Erik Llewellyn	Pace
Ryan Ruehle	Pace
Ezekial Guza	Pace
Steve Goodreau	CDM Smith
Jeff Sangillo	CDM Smith
Lissa Domoracki	Metro Strategies
Other: Sara Hage	HNTB/ Pace PMO
Other: Steve Brown	HNTB/Pace PMO



#### A. Raw Comments Presentation

#### Purpose and Need Statement

• Safety should be the first goal and included in the Purpose and Need document.

#### Measures of Effectiveness

- When you refer to widening impacts, are you talking about widening streets?
  - o Mainly curb lines and medians
- You should take into consideration emissions reductions (transit ridership increase), economic development (number of sites, opportunities for development) and which communities are being impacted (socio-economic status of communities).
- Person throughput would be a valuable metric. Instead of segregating by mode, you should review throughput on the entire corridor.
- Is there a minimal travel time increase needed to make this feasible?
  - There is no firm threshold. As traffic moves well in this area already, this
    provides an opportunity to potentially incorporate a transit lane without a
    negative impact to traffic
- In addition to bus travel time, are you analyzing motor vehicle travel time? (Yes.)

#### Concept 1: Queue Jumps

- It is only necessary at 22 intersections out of how many? It would be helpful to have a list of all the affected intersections.
  - There are 36 intersections with traffic signals. Queue jumps are being considered at a maximum of 22 intersections. Widening may not be necessary for all intersections.
- Is the time savings of 4-8 seconds/intersection normal for a queue jump?
  - Yes, this is estimated based on guidance from a TCRP (Transit Cooperative Research Program) Report.
- Do queue jumps impact where the bus stop would be located? (Yes.)
- With this project, you anticipate receiving 4-8 seconds time savings from 22 intersections?
  - o Yes, and this time savings would only be from queue jumps.
- If there is a space in a commercial corridor where deliveries need to take place on Halsted, would that be accounted for?
  - Yes, in the next stage of design, we would discuss this with businesses and other affected parties in the corridor.



#### Concept 2: Bus Lanes

#### (North)

- Would you need extra space to place bollards between bikes and buses?
  - They are not included in this design (slide 21 Bus and Bike Lane) but could be a potential option.
- I did not realize there were bike lanes in the northern end.
- Bike counts in these areas would be helpful to see how many people are using these lanes.
- How would bike lanes interact with buses?
  - There are a number of ways, such as the bike lanes becoming a dashed line to denote a shared lane. There are other methods to clearly denote a shared lane.
- Do Pace Pulse stations fit on a 12' wide sidewalk and allow for pedestrians?
  - Yes, this includes space for a shelter and meeting ADA standards for passing the shelter.
- It would be beneficial to hear opinions from cyclists.

#### (Middle)

- Do we want to add bike lanes here?
- (CAG Member Response) No. We do not want bike lanes. Halsted is too busy.
- If you narrow the lanes, this is also a traffic calming measure and people tend to drive slower.
- Is there paid parking in the corridor?
  - There is a small area of paid parking on 79<sup>th</sup> and another on Halsted, around 80<sup>th</sup> Street.
- Is parking removed or reduced?
  - o It is removed in this example, but it could be changed to parking allowable in limited hours (slide 24).
- Do you have parking counts? (Yes.)
- So residents will need to park in a garage or on side streets? Many residents do not have garages.
  - Yes, we want your feedback on whether this is a viable option.
- I would rather see trees and landscaping along Halsted.

#### (South)

- From Chicago to Riverdale along Halsted, there is no median (slide 25).
  - o We will investigate the configuration is this area.

#### **Bus Lane Characteristics**



- If there is metered parking on 79<sup>th</sup> Street, we (CDOT), need to know the count if this is planning to be removed.
- Regarding funding opportunities, I don't think the 50% bus lanes applies to Small Starts. You should be eligible without 50%.
- These travel time savings exclude the signal improvements? (Yes.)
- Can you provide the locations of the parking spaces in the southern end? (Yes.)
- I think everyone should be able to see where the parking spaces are. This will affect businesses and have a big impact near residential units.
- It has been shown that protected bike lanes do improve business access.
- (CAG Member Response) We do not have bikers.
- Queue jumps are much easier to accommodate than bus lanes and removing parking. From 103<sup>rd</sup> to 105<sup>th</sup>, there are so many businesses that would be affected – KFC, beauty shops.
- Another way to think about it is that we are planning for the future. In the future, people may take transit over cars.
- Do either of these options have an impact on the number or type of station? (Yes.)

#### Station Improvements and Limited Stop Service

- What's the average cost for a station?
  - o For Pulse, it is approx. \$250,000/station.
- I'm concerned that there is no stop near 134th. There are trails that will be connecting at this location and a stop nearby is needed.

#### Preliminary Alternative Analysis/Decision Matrix

- There are other sources of funding than just the FTA Capital Investment Grants (CIG) program. You should include economic development in the table, even though it is hard to quantify.
- Should grants even be in the table? Funding always comes into play, but with a set purpose and goals, maybe you should not emphasize funding.
- Some of these measures are inputs for funding, so you could remove grants from the table and still look at what is available.

#### Stop Spacing and Bus Operations

- Would it be possible to have a survey to pass out to bus riders?
- As the CTA bus service ends at 8:30pm, are there people left behind? Has ridership decreased in the last few years? I think these should be considered. (For Pace, there has been a small decrease in the last few years, but this corridor still contains the route with highest ridership.)



- It may be helpful to look at business hours along the corridor to understand the hours that workers need to travel. If people are making connections in the morning, can they get home the same way in the evening?
- I think that if you improve the bus service, more people will ride it.

#### B. Breakout Group Report Out

(Edits to and ranking within Decision Matrix)

#### Group 1

- Added person throughput as a measure of effectiveness
- Added economic impact potential
- Added pedestrian benefits, which would include the extent to which people can walk to the bus or other pedestrian amenities
- Removed grant opportunities
- Removed widening impacts; did not see this as relevant
- Voted on our favorite criteria; which included person throughput and economic impact potential; reliability and bus travel time were in second place

#### Group 2

- Concerned about traffic and parking impacts
- Worried about the space needed for dedicated transit lanes, while recognizing the transit benefits

#### Group 3

- Removed grant opportunities
- Added land use (i.e., may be opportunities to encourage infill and economic development in areas with excess parking)
- Added traffic safety
- The most favored criteria were bus travel time and reliability



### Appendix C: Corridor Advisory Group Meeting #3 Meeting Notes

Thursday, February 14, 2019 1:00 PM – 3:00 PM Harvey Public Library

The third Corridor Advisory Group (CAG) Meeting for the South Halsted Bus Corridor Enhancement Project took place on Thursday, February 14, 2019, at 1 PM at Harvey Public Library, 15441 Turlington Avenue, Harvey, IL 60426. Eleven CAG members, including representatives from four municipalities, were in attendance. All CAG members and project team members in attendance can be found on page 5. CAG members were provided a copy of the PowerPoint presentation upon entering the meeting.

The meeting began with introductions of all CAG and project team members. Sukmeke Watkins, CTA Government and Community Relations, then provided an overview of the project and reviewed the meeting agenda. Jeff Sangillo, CDM Smith, continued with a recap of CAG Meeting #2, project status, and goals for this CAG meeting. Mr. Sangillo presented revisions to the Purpose and Need Statement and measures of effectiveness since last meeting.

Next, Mr. Sangillo provided a detailed review of the following narrowed corridor improvement alternatives:

- Alternative 1: Queue Jumps
- Alternative 2: Queue Jumps (79<sup>th</sup> Street, 95<sup>th</sup> Street and Halsted between 79<sup>th</sup> and 129<sup>th</sup> Streets), Bus Lanes (129<sup>th</sup> to 154<sup>th</sup>)
- Alternative 3: Queue Jumps (79<sup>th</sup> Street, 95<sup>th</sup> Street, and Halsted between 79<sup>th</sup> and 98<sup>th</sup> Streets), Bus Lanes (98<sup>th</sup> to 154<sup>th</sup>)

Mr. Sangillo also discussed peak vs. off-peak travel times to inform the discussion regarding bus lane operations in the peak hour or all day (24-hour bus lanes).

Following the review of improvement alternatives, Mr. Sangillo discussed station location concepts, describing proposed station improvements and typical station placements.

Mr. Sangillo then introduced the small group discussion activity, in which feedback was requested on the alternatives and the station locations. CAG members divided into two groups, focusing on the northern half of the corridor or the southern half. Each CAG member received an alternatives handout, conceptual station location plans, and two comment forms to aid in providing feedback on the alternatives and the station location concepts.



Small group discussion occurred for approximately 25 minutes, prior to reconvening and reporting out to the larger group. Mr. Sangillo then provided a brief summary of next steps, which included reviewing CAG comments and confirming the preferred alternative(s). The recommended improvements will be shared with the CAG via email in spring 2019.

A comments summary and action items are included below.

#### **Summary**

Discussion occurred throughout the meeting. A few themes arose, including the following:

#### <u>Alternative Preferences</u>

- Overall support for Alternative #3.
- Agreement that from an economic development standpoint, Alternative #3 is preferred.
- Support for 24-hour bus lanes, as there are a significant amount of off-peak riders who may utilize the bus routes.

#### **Specific Station Locations**

- Request to add/move a Pulse stop to 134<sup>th</sup> Street, where two trail heads for the Major Taylor Trail are located. There is a gap between proposed stops in this location.
- Identification of bus stops where a significant number of riders board and consideration for larger stations to accommodate all riders as necessary. For example, at 147<sup>th</sup> Street, where those waiting for the bus form a line which wraps around the block. A typical Pulse platform may not accommodate this.
- Identification of current bus shelters where there are safety issues. For example, the shelter at the 144<sup>th</sup> Street intersection has been hit multiple times by northbound motor vehicles when making the right turn from westbound 144<sup>th</sup> Street to northbound Halsted Street.

#### Roadway Configuration

- Suggestion to incorporate bus bulbs instead of bus lanes, as bus lanes are typically created when there is high congestion.
- Some concern over 10' lanes, and if they are wide enough to accommodate motor vehicles.
- Some support for reducing the median, as there are safety concerns for individuals standing on the median (specifically in Riverdale).



• Concern about ways to deter drivers from driving in bus only lanes

#### Other

- Interest in improving the pedestrian environment in addition to the transit improvements, such as the incorporation of median refuge islands. Pedestrian improvements may also increase transit ridership.
- Emphasis on incorporating community and business owners' input in the next phase of the project, specifically related to station locations and parking impacts.
- Questions regarding the operations of local and express service; whether the buses would bunch or conflict with one another.
- General questions regarding IDOT's plans at 149th Street.
- Recognition that additional analysis is required, including the traffic and safety impacts of adding bus lanes.

#### **Action Items**

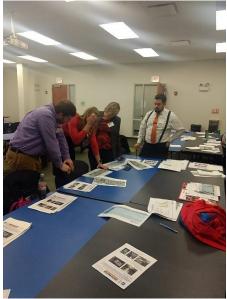
- Review proposed station at 147<sup>th</sup> Street to ensure it will accommodate the high number of riders.
- Review/move the proposed station at the 144<sup>th</sup> Street intersection, as the current location is a safety concern.
- Review potential pedestrian accommodations/improvements which could be incorporated in the design.
- Conduct additional traffic and safety analysis to ensure that bus lanes can be appropriately accommodated.













CAG Member in Attendance	Organization
	Consultant to: City of Harvey, Village of Dixmoor, Village
Ernest Roberts	of Calumet Park
Nick Haddad	IDOT
Tomo Music	Cook County Dept. of Transportation and Highways
Peter Kersten	RTA
Allison Buchwach	Metra
Leslie Phemister	South Suburban Mayors & Managers Association
Dorian Johnson	Far South CDC
Jerome Russell	Village of Riverdale
Martin Menninger	Chicago Metropolitan Agency for Planning
Audrey Wennick	Metropolitan Planning Council
Julia Gerasimenko	Active Transportation Alliance

Project Team Member in Attendance	Organization
Emily Drexler	CTA
Jennifer Henry	CTA
Sukmeke Watkins	CTA
Paris Tyler	CTA
Charlotte O'Donnell Obodzinski	Pace
Jessica Rybarczyk	Pace
Martin Sandoval	Pace
Ryan Ruehle	Pace
Ezekiel Guza	Pace
Steve Goodreau	CDM Smith
Jeff Sangillo	CDM Smith
Lissa Domoracki	Metro Strategies
Other: Sara Hage	HNTB/ Pace PMO
Other: Steve Brown	HNTB/Pace PMO

## **Traffic Impact Analysis**

### **TECHNICAL MEMORANDUM**

South Halsted Bus Corridor Enhancement Project

October 2019

**Prepared for:** 





CDM Smith TranSmart/EJM\*\*

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#### Introduction

The South Halsted Bus Corridor Enhancement Project spans approximately 11 miles along South Halsted Street, from 79<sup>th</sup> Street to the Pace Harvey Transportation Center at 154<sup>th</sup> Street. The project corridor, shown in Figure 1, also includes portions of 79<sup>th</sup> Street and 95<sup>th</sup> Street that serve as connectors between Halsted Street and the CTA 79<sup>th</sup> Street and 95<sup>th</sup> Street Red Line Stations. The project objective is to improve efficiency and reduce travel delays for CTA and Pace buses along this corridor. Transit improvement developed in this study include running way alternatives and the implementation of Pace's Pulse service south of 95<sup>th</sup> Street. All planned improvements would complement CTA's planned extension of the Red Line from 95<sup>th</sup> to 130<sup>th</sup> Street. The CTA has hired a Program Manager for the Red Line Extension project to oversee the final environmental review and preliminary engineering work necessary to seek federal funding for the project.

The proposed transit improvements for the South Halsted Bus Corridor Enhancement Project include three different running way improvements. Descriptions of each of alternatives are found below and summarized in Table 1.

• Alternative 1 – Queue jumps are proposed at signalized intersections along South Halsted Street from 79<sup>th</sup> Street to 98<sup>th</sup> Street. Between 98<sup>th</sup> Street and 100<sup>th</sup> Street, one existing travel lane in each direction would be converted to a bus lane. A bus lane is proposed in this section because there are several closely spaced intersections where the queue jumps would be synchronized to function as a bus lane. At each signalized intersection between 100<sup>th</sup> Street and 129<sup>th</sup> Street, queue jumps would be implemented, accommodated by the removal of approximately 233 existing parking spaces.

At the intersections of 134<sup>th</sup>, 138<sup>th</sup>, 144<sup>th</sup>, and 147<sup>th</sup> Streets, queue jumps are proposed by converting existing dedicated left turn lanes to shared through-left turn lanes as the left turn volumes are low. An option would be to keep the left turn and widen the roadway to provide the queue jump lane. The former approach reduces the need for additional right-of-way and pavement. Additional analysis and safety review would be needed. On-street parking along 79<sup>th</sup> Street between Halsted Street and Lowe Avenue could be removed to create a dedicated bus lane for several blocks, as noted in the CTA Bus Slow Zone Study – CTA Route #79.

Queue jumps would be implemented at the intersections of Vincennes Avenue & 79<sup>th</sup> Street, Parnell Avenue & 95<sup>th</sup> Street, and Wentworth Avenue & 95<sup>th</sup> Street. In total, 314 on-street parking spaces at 28 intersections would need to be removed to accommodate all queue jumps.

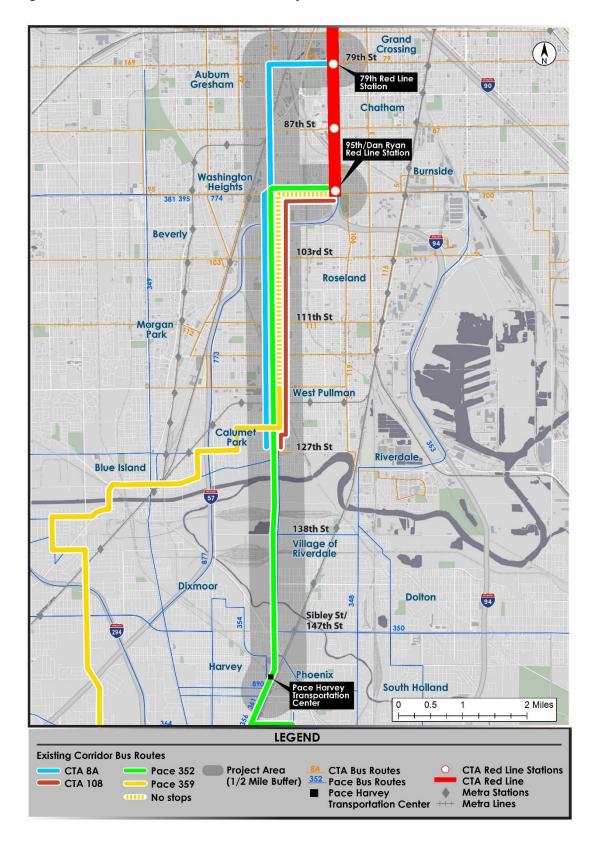
- Alternative 2 This alternative is the same as Alternative 1 along South Halsted Street from 79<sup>th</sup> Street through 129<sup>th</sup> Street and along both 79<sup>th</sup> Street and 95<sup>th</sup> Street. On the remaining portion of South Halsted Street from 129<sup>th</sup> Street to the Pace Harvey Transportation Center at 154<sup>th</sup> Street, one existing travel lane in each direction would be converted to a bus lane. The bus lane could operate as dedicated full time or only during peak hours. The same number of total parking spaces as Alternative 1 would need to be removed for this alternative.
- Alternative 3 This alternative is the same as Alternative 1 along Halsted Street from 79<sup>th</sup> Street to 100<sup>th</sup> Street and along both 79<sup>th</sup> Street and 95<sup>th</sup> Street. In addition to the 183 on-street parking spaces for queue jumps between 79th and 98th St (including 79<sup>th</sup> Street and 95<sup>th</sup> Street), approximately 970 parking spaces from 100<sup>th</sup> Street to 129<sup>th</sup> Place would need to be removed to create a bus lane that would allow right-turning vehicles. The on-street parking was considered

for conversion due to the many commercial parking lots in this segment and low utilization. The bus lane could operate as dedicated full time or only during peak hours. Similar to Alternative 2, one existing travel lane in each direction would be converted to a bus lane between 129<sup>th</sup> Place and the Pace Harvey Transportation Center at 154<sup>th</sup> Street. In total, 1,153 on-street parking spaces would need to be removed to accommodate the queue jumps and bus lanes.

**Table 1: Summary of Alternatives for South Halsted Corridor** 

Halsted Street Segment	Alternative 1	Alternative 2	Alternative 3		
79 <sup>th</sup> Street to 98 <sup>th</sup> Street	Queue Jumps				
(2.4 miles)	(Repurpose parking)				
98 <sup>th</sup> Street to 100 <sup>th</sup> Street	Proposed Bus Lane				
(0.25 miles)	(Repurpose travel lane)				
100 <sup>th</sup> Street to 129 <sup>th</sup> Place	Queue Jumps Proposed Bus La		Proposed Bus Lane		
(3.7 miles)	(Repurpose parking) (Repurpose parkir		(Repurpose parking)		(Repurpose parking)
129 <sup>th</sup> Place to 154 <sup>th</sup> Street (3.4 miles)	Queue Jumps (Convert left turn lane to shared through-left lane)	•	Proposed Bus Lane (Repurpose travel lane)		
79 <sup>th</sup> Street	Queue Jumps				
(1.0 mile)	(Repurpose parking)				
95 <sup>th</sup> Street	Queue Jumps				
(1.0s mile)	(Repurpose parking)				

Figure 1: South Halsted Bus Enhancement Project Corridor



## Methodology

The traffic impacts for the South Halsted Bus Corridor Enhancement Project were analyzed using Synchro as a screening tool. Synchro is a traffic analysis and signal optimization program created by Trafficware. Synchro is designed to approximate travel conditions at signalized intersections, unsignalized intersections, and roundabouts. Users input existing or proposed roadway geometry and signal layout along with observed turning movement counts and traffic volume data. Synchro then estimates the average travel delay expected at the intersection. All Synchro models were created with a design year of 2019, and existing CDOT and IDOT traffic signals were optimized for the existing volumes in each of the three alternatives. The modelling performed with Synchro examined the addition or removal of approach lanes. The analysis did not account for TSP which would require other modelling tools nor did the analysis examine impacts to cross streets. The results provide a general indication of how the signalized intersections would operate under the different alternatives. Maps indicating existing volume inputs are found in Appendix A.

Turning movement counts and traffic volume data collected for previous studies were used where available from CDOT. Supplemental traffic turning movement counts were conducted using a video-based system on April 10, 2018 from 7:00 a.m. to 9:00 a.m. and from 4:00 p.m. to 6:00 p.m. at the following locations:

- Vincennes Avenue & 79<sup>th</sup> Street
- Lafavette Avenue & 79<sup>th</sup> Street
- Parnell Avenue & 95<sup>th</sup> Street
- Wentworth Avenue & 95<sup>th</sup> Street
- Halsted Street & 81<sup>st</sup> Street
- Halsted Street & 83<sup>rd</sup> Street
- Halsted Street & 91<sup>st</sup> Street
- Halsted Street & 98<sup>th</sup> Street
- Halsted Street & 101<sup>st</sup> Street
- Halsted Street & 107<sup>th</sup> Street
- Halsted Street & 114<sup>th</sup> Street
- Halsted Street & 115<sup>th</sup> Street

- Halsted Street & 119<sup>th</sup> Street
- Halsted Street & 120<sup>th</sup> Street
- Halsted Street & 123<sup>rd</sup> Street
- Halsted Street & Vermont Street
- Halsted Street & 134<sup>th</sup> Street
- Halsted Street & 138<sup>th</sup> Street
- Halsted Street & 144<sup>th</sup> Street
- Halsted Street & 147<sup>th</sup> Street
- Halsted Street & 149<sup>th</sup> Street
- Morgan Street & 149<sup>th</sup> Street
- Morgan Street & 150<sup>th</sup> Street
- Park Avenue & 154<sup>th</sup> Street

Signalized intersection level of service (LOS) is described in terms of the average observed delay for the intersection. LOS of A, B, or C indicates an intersection that is performing well, while LOS of D is used as the minimum acceptable design standard. Intersections with LOS of E are considered as performing poorly, and intersections with LOS of F as failing. Table 2 summarizes the LOS criteria for signalized intersections as defined by the Highway Capacity Manual (2016).

**Table 2: Intersection Level of Service Standards** 

Level of Service	Delay	Performance
А	≤ 10 seconds	
В	10-20 seconds	Well
С	20-35 seconds	
D	35-55 seconds	Acceptable
E	55-80 seconds	Poor
F	> 80 seconds	Failure

Source: Highway Capacity Manual, 6th Edition, Transportation Research Board, 2016

The following signalized intersections along Halsted Street were analyzed in Synchro under existing conditions, as well as the roadway configurations associated with each of the three alternatives:

- Halsted Street & 79<sup>th</sup> Street
- Halsted Street & 81<sup>st</sup> Street
- Halsted Street & 83<sup>rd</sup> Street
- Halsted Street & 85<sup>th</sup> Street & Summit Avenue
- Halsted Street & Vincennes Avenue
- Halsted Street & 87<sup>th</sup> Street
- Halsted Street & 91<sup>st</sup> Street
- Halsted Street & 95<sup>th</sup> Street
- Halsted Street & 98<sup>th</sup> Place
- Halsted Street & 99<sup>th</sup> Street
- Halsted Street & 101<sup>st</sup> Street
- Halsted Street & 103<sup>rd</sup> Street
- Halsted Street & 107<sup>th</sup> Street
- Halsted Street & 111<sup>th</sup> Street

- Halsted Street & 114<sup>th</sup> Street
- Halsted Street & 115<sup>th</sup> Street
- Halsted Street & 119<sup>th</sup> Street
- Halsted Street & 120<sup>th</sup> Street
- Halsted Street & 123<sup>rd</sup> Street
- Halsted Street & 127<sup>th</sup> Street
- Halsted Street & Vermont Street
- Halsted Street & 134<sup>th</sup> Street
- Halsted Street & 138<sup>th</sup> Street
- Halsted Street & 144<sup>th</sup> Street
- Halsted Street & 147<sup>th</sup> Street
- Halsted Street & 149<sup>th</sup> Street
- Morgan Street & 149<sup>th</sup> Street
- Morgan Street & 150<sup>th</sup> Street
- Park Avenue & 154<sup>th</sup> Street

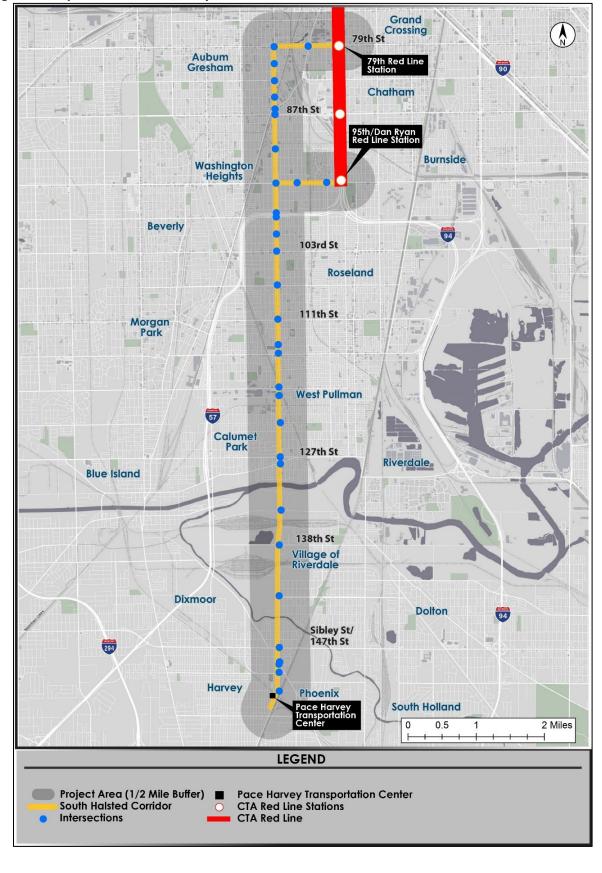
The following intersections along 79<sup>th</sup> Street and 95<sup>th</sup> Street were analyzed in Synchro under existing conditions, as well as the roadway configurations associated with each of the three alternatives:

- Vincennes Avenue & 79<sup>th</sup> Street
- Parnell Avenue & 95<sup>th</sup> Street

• Wentworth Avenue & 95<sup>th</sup> Street

Figure 2 shows the location of all intersections that were analyzed.

Figure 2: Map of Intersections Analyzed



Traffic operations at each signalized intersection were analyzed under the four following scenarios:

- AM peak with existing signal timings for existing conditions
- AM peak with optimized signal timings and proposed alternative geometric changes
- PM peak with existing signal timings for existing conditions
- PM peak with optimized signal timings and proposed alternative geometric changes

## Queue Jumps

Queue jumps allow buses to move ahead of vehicles queued at an intersection. The bus uses a dedicated or shared bus/right turn lane and an advanced green signal to get a head start before general traffic in the through lane can enter the intersection. Queue jump application with a shared bus/right turn lane is suitable for locations where right turn volumes and queue lengths are small.

For the analysis conducted as part of this preliminary screening study, queue jumps are placed at locations where right turn volumes are low, queue lengths for a right turn movement are less than 100 feet or approximately four car lengths, and geometrical restraints are minimal. Synchro modeling helped identify the following intersections with queue lengths for right turn movements of 100 feet or less 95% of the time:

- Halsted Street & 79<sup>th</sup> Street
- Halsted Street & 81st Street
- Halsted Street & 83<sup>rd</sup> Street
- Halsted Street & 91st Street
- Halsted Street & 95<sup>th</sup> Street
- Halsted Street & 101<sup>st</sup> Street
- Halsted Street & 103<sup>rd</sup> Street
- Halsted Street & 107<sup>th</sup> Street
- Halsted Street & 111<sup>th</sup> Street
- Halsted Street & 114<sup>th</sup> Street
- Halsted Street & 115<sup>th</sup> Street

- Halsted Street & 119<sup>th</sup> Street
- Halsted Street & 120<sup>th</sup> Street
- Halsted Street & 123<sup>rd</sup> Street
- Halsted Street & 134<sup>th</sup> Street
- Halsted Street & 138<sup>th</sup> Street
- Halsted Street & 144<sup>th</sup> Street
- Halsted Street & 147<sup>th</sup> Street
- Vincennes Avenue & 79<sup>th</sup> Street
- Parnell Avenue & 95<sup>th</sup> Street
- Wentworth Avenue & 95<sup>th</sup> Street

Queue jumps at the locations below are also included in the analysis and recommendations as part of this study, however, further study would be required to confirm the feasibility of each intersection.

- Halsted Street & Vincennes Avenue
- Halsted Street & 87th Street
- Halsted Street & 98<sup>th</sup> Street
- Halsted Street & 99<sup>th</sup> Street
- Halsted Street & 127th Street
- Halsted Street & Vermont Street
- Lafayette Avenue & 95<sup>th</sup> Street

## Alternative 1

## **Impacts**

Overall, the LOS of intersections throughout the corridor remained largely unchanged during the AM peak hour when comparing existing conditions to those of Alternative 1, with 27 of 32 intersections

remaining at their existing LOS. The AM peak hour LOS deteriorates at two intersections, from C to D at South Halsted Street & 99<sup>th</sup> Street, and from A to B at Morgan & 149<sup>th</sup> Street. With the proposed changes, the LOS improves from E to C at two intersections, those being South Halsted Street & 103<sup>rd</sup> Street and South Halsted Street & 111<sup>th</sup> Street. This may be a result of allowing right turning vehicles into the queue jump lane. Additionally, the LOS at South Halsted Street & 107<sup>th</sup> Street improves from C to B during the AM peak hour. This also may be a result of allowing right turning vehicles into the queue jump lane. The resulting AM peak hour intersection delay and level of service (LOS) for each of the intersections analyzed for Alternative 1 are shown in Table 3.

During the PM peak hour, 21 of 32 intersections within the corridor remain at their existing LOS when comparing existing conditions to those of Alternative 1. At two intersections, South Halsted Street & 87<sup>th</sup> Street and South Halsted Street & 98<sup>th</sup> Place, the PM peak hour LOS deteriorates from D to E, and from C to D, respectively. The unique geometry and high traffic volumes at 87<sup>th</sup> Street, along with the reduction in through lanes to accommodate the geometry necessary for queue jumps, contribute to this reduction in LOS. The proposed inclusion of a dedicated bus lane at 98<sup>th</sup> Place, where many vehicles are entering and exiting I-57, affects the LOS of the intersection. The resulting PM peak hour intersection delay and LOS for each of the intersections analyzed for Alternative 1 are shown in Table 4.

## Summary of Results

Implementation of Alternative 1 would result in improved operations at the two intersections with an existing LOS of E during the AM peak hour (103<sup>rd</sup> and 111<sup>th</sup> Street) because of right turning vehicles being allowed to use the queue jump lane. During the AM peak hour, only Halsted Street & 99<sup>th</sup> Street and Parnell Avenue & 95<sup>th</sup> Street experience a reduction in LOS, from C to D and from A to B, respectively.

During the PM peak hour, implementation of Alternative 1 would result in seven intersections improving their LOS at least one letter grade because of right turning vehicles allowed to use the queue jump lane. Furthermore, implementation of Alternative 1 would result in LOS D or better for all but one intersection. The proposed changes under Alternative 1 at the intersection of Halsted Street & 87<sup>th</sup> Street result in a deterioration from LOS D to LOS E. With the benefits to transit riders and the increased volume of people being moved through the intersection via transit, a LOS of E may be considered acceptable. This intersection would potentially benefit from additional modifications to help improve traffic flow and minimize delay due to the unique geometry and high traffic volumes present at the intersection. Further analysis utilizing other traffic simulation software such as Vissim (a more advanced traffic modeling tool) will take place during the next phase of the project and may help to explore other operational improvements. The roadway treatment proposed as part of Alternative 1 are estimated to have a transit travel time benefit of approximately 5%.<sup>1</sup>

<sup>&</sup>lt;sup>1</sup> TCRP Report 118, BRT Practitioner's Guide, Page S-9, Exhibit S-3

## Alternative 2

## **Impacts**

Alternative 2 Synchro analysis results are similar to Alternative 1 results between 79<sup>th</sup> Street and Vermont Street along South Halsted Street in that the resulting vehicle delays and levels of service at these intersections are the same in both alternatives. The vehicle delay and level of service for the eight remaining intersections impacted by the proposed changes of Alternative 2 during the AM and PM peak hours are shown in Table 3 and Table 4, respectively.

At the intersections of South Halsted Street & 134<sup>th</sup> Street and Morgan Street & 149<sup>th</sup> Street, the AM peak hour LOS deteriorates from A to B. At the intersection of South Halsted Street & 147<sup>th</sup> Street, the PM peak hour LOS deteriorates from D to E. This reduction in level of service is due to the conversion of a through lane to an exclusive bus lane in both directions along Halsted Street.

## Summary of Results

South of 129<sup>th</sup> Place, where bus lanes are provided in Alternative 2, the level of service at all signalized intersections maintain LOS D or better during the AM peak hour. During the PM peak hour, all intersections maintain acceptable LOS of D or better except for Halsted Street & 147<sup>th</sup> Street, which reduces from D to E. Due to the increased volume of people being moved through the intersection via transit, a LOS of E may be acceptable. The roadway treatments proposed as part of Alternative 2 are estimated to have a transit travel time benefit of approximately 8%.<sup>2</sup>

## Alternative 3

## **Impacts**

Alternative 3 Synchro analysis results are similar to the Alternative 1 results between 79<sup>th</sup> Street and 100<sup>th</sup> Street along South Halsted Street and Alternative 2 results between 129<sup>th</sup> Place and the Harvey Pace Transportation Center at 154<sup>th</sup> Street. Therefore, the vehicle delay and LOS results at these locations are the same as previously reported for Alternatives 1 and 2. The vehicle delay and level of service for the 11 remaining intersections of Alternative 3 during the AM and PM peak hours are shown in Table 3 and Table 4, respectively.

With the proposed changes, the LOS at Halsted Street & 103<sup>rd</sup> Street and Halsted Street & 111<sup>th</sup> Street, improves from E to C during the AM peak hour, due to the addition of a bus lane that allows right turning vehicles. Additionally, all 11 intersections maintain LOS C or better during both the AM and PM peak period.

## Summary of Results

Between 101<sup>st</sup> Street and Vermont Street, where Alternative 3 proposes a bus lane that allows right turning vehicles, all signalized intersections maintain LOS C or better during the AM and PM peak hour. In addition to the LOS improvement at Halsted Street & 103<sup>rd</sup> Street and Halsted Street & 111<sup>th</sup> Street, all other intersections maintain their existing LOS or improve. The 11 intersections exhibit similar delay and LOS to those found in Alternative 1, where queue jumps are used in place of the addition of a

<sup>&</sup>lt;sup>2</sup> TCRP Report 118, BRT Practitioner's Guide, Page S-9, Exhibit S-3

dedicated bus lane as described in Alternative 3. The roadway treatments proposed as part of Alternative 3 are estimated to have a transit travel time benefit of approximately 10%.<sup>3</sup>

## Conclusions

Each alternative proposes possible changes to maximize transit operations while attempting to maintain existing levels of service for all traffic within the corridor. Alternative 1 proposes queue jumps at signalized intersections throughout much of the corridor, along with a bus lane between 98<sup>th</sup> Street and 100<sup>th</sup> Street. The queue jumps would allow buses to "jump" ahead of general traffic, reducing delays and improving timeliness.

Alternative 2 proposes the converting of a travel lane to a bus lane south of 129<sup>th</sup> Place, while maintaining the proposed changes found in Alternative 1 north of 129<sup>th</sup> Place. A bus lane would provide a crucial link to the Pace Harvey Transportation Center at the southern terminus of the South Halsted Street corridor. Further, conversion of a travel lane to a bus lane would allow the dedicated left turns at the intersections of 134<sup>th</sup>, 138<sup>th</sup>, 144<sup>th</sup>, and 147<sup>th</sup> Street to operate without additional right-of-way (ROW). This feature provides added safety over Alternate 1.

Alternative 3 proposes to convert the existing parking lane to a bus lane that also allows for right-turning vehicles between 98<sup>th</sup> Street and 129<sup>th</sup> Place, in addition to the bus lane south of 129<sup>th</sup> proposed in Alternative 2. This allows for a continuous bus lane along more than seven miles of Halsted Street which will improve transit speed and reliability. In all three alternatives, the impact to traffic is minimal, with a large number of intersections maintaining their levels of service. A detailed summary of LOS and delay for each approach for all analyzed intersections is found in Appendix B.

With a proposed bus lane running from 98<sup>th</sup> Street to the Pace Harvey Transportation Center at Park Avenue & 154<sup>th</sup> Street, Alternative 3 provides the greatest opportunity for improvements to transit service and person throughput. In addition to the benefits to transit performance, Alternative 3 has limited impacts on the existing traffic throughout the corridor similar to those found in the other two alternatives. With an increased volume of people being moved through the corridor via transit, any reduction in the level of service may be considered an acceptable trade off. None of the intersections would operate at LOS F. As the project moves forward, further detailed analysis and continued stakeholder input is necessary.

<sup>&</sup>lt;sup>3</sup> TCRP Report 118, BRT Practitioner's Guide, Page S-9, Exhibit S-3

## Next Steps

As the South Halsted Bus Corridor Enhancement project advances into NEPA, advanced traffic analyses will be performed, including but not limited to the following:

- More detailed analysis using Vissim to review the impact that the proposed alternatives would have on CTA and Pace bus operations at key locations (e.g. 87<sup>th</sup> Street and 100<sup>th</sup> Street). This may include effects on bus timeliness and connectivity between other nearby transit options, such as the CTA Red Line.
- Further exploration into overall access for pedestrian and bicyclists from the proposed changes to geometry and signal timings.
- Transit signal priority is currently being studied as a part of separate project along this corridor. The result of that study should be accounted for in the next phase of study.
- Queue jump locations determined through this preliminary screening study need to be further
  evaluated during the next phase for signal phasing suitability especially for side streets, queue
  length, and safety considerations.
- Geometric modifications need to be examined in detail once topographic survey is provided.
- Detailed crash analysis.
- Signal timing at each individual intersection were optimized as a part of the study. The system-wide progression of green lights through the corridor and possibly interconnection of the signal system should be evaluated further.
- Detailed traffic analysis using the Highway Safety Manual methodology for each proposed crosssection.
- As part of the recommendations in this study, bus lanes are accommodated south of 129<sup>th</sup> Place by removing a travel lane. Further road diet analysis south of 129<sup>th</sup> Place is recommended, including the impact of removing travel lanes and/or turning lanes on queue management. IDOT has previously developed methods for analyzing road diets, including the effects of queuing in areas where travel lanes and turn lanes are narrowed or removed. Successful implementations of road diets, such as those found in Geneva along Route 31 and in Chicago along Sheridan Road, might serve as an appropriate blueprint for analysis on the South Halsted Corridor.
- Continue to gather input from stakeholders along the corridor including local businesses, neighborhood groups, and transit riders.

Table 3: Comparison of AM Peak Intersection Delay & LOS for Alternative 1, 2 & 3

				AM	Peak			
	Existing	LOS	Alternativ	ve 1	Alternati	ve 2	Alternativ	/e 3
Intersection	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Halsted St & 79th St	29.9	С	30.4	С				
Halsted St & 81st St	17.8	В	12.5	В				
Halsted St & 83rd St	12.2	В	15.7	В				
Halsted St & 85th St & Summit Ave	22.3	С	20.9	С				
Halsted St & Vincennes Ave	28.0	С	20.8	С			See Altern	ative
Halsted St & 87th St	43.2	D	44.4	D			1	
Halsted St & 91st St	9.8	Α	5.8	Α				
Halsted St & 95th St	40.6	D	36.9	D				
Halsted St & 98th Pl	47.4	D	39.3	D				
Halsted St & 99th St	32.3	С	36.7	D				
Halsted St & 101st St	13.9	В	11.1	В	See Altern	ative	11.2	В
Halsted St & 103rd St	63.8	Е	28.0	С	1		31.9	С
Halsted St & 107th St	25.2	С	17.7	В			18.9	В
Halsted St & 111th St	62.9	Е	20.6	С			24.1	С
Halsted St & 114th St	9.3	Α	7.2	Α			8.2	Α
Halsted St & 115th St	17.7	В	15.4	В			14.9	В
Halsted St & 119th St	22.0	С	20.6	С			21.4	С
Halsted St & 120th St	14.9	В	10.3	В			10.5	В
Halsted St & 123rd St	16.9	В	12.3	В			10.1	В
Halsted St & 127th St	29.1	С	28.1	С			28.5	С
Halsted St & Vermont St	10.9	В	10.2	В			10.2	В
Halsted St & 134th St	9.4	Α	4.9	Α	10.5	В		
Halsted St & 138th St	21.9	С	23.3	С	25.1	С		
Halsted St & 144th St	11.0	В	12.2	В	11.9	В		
Halsted St & 147th St	38.7	D	37.0	D	48.0	D	See Altern	ative
Halsted St & 149th St	50.4	D	44.0	D	44.5	D	2	
Morgan St & 149th St	9.6	Α	13.3	В	14.1	В		
Morgan St & 150th St	17.2	В	17.9	В	+			
Park Ave & 154th St	15.7	В	15.7	В				
Vincennes Ave & 79 <sup>th</sup> Street	21.1	С	34.4	С	See Alternative			
Parnell Ave & 95 <sup>th</sup> Street	9.9	Α	196	В		See Altern	ative	
Wentworth Ave & 95 <sup>th</sup> Street	12.1	В	19.6	В	1		1	

Table 4: Comparison of PM Peak Intersection Delay & LOS for Alternative 1, 2 & 3

	PM Peak									
	Existing	LOS	Alternati	ve 1	Alternati	ve 2	Alternati	ve 3		
Intersection	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS		
Halsted St & 79th St	36.9	D	34.2	С						
Halsted St & 81st St	11.0	В	11.6	В						
Halsted St & 83rd St	14.5	В	14.7	В						
Halsted St & 85th St & Summit Ave	36.5	D	17.2	В						
Halsted St & Vincennes Ave	45.0	D	30.5	С			See Altern	ative		
Halsted St & 87th St	43.4	D	63.6	Е			1			
Halsted St & 91st St	10.1	В	4.4	Α						
Halsted St & 95th St	52.6	D	47.3	D						
Halsted St & 98th Pl	33.2	С	42.0	D						
Halsted St & 99th St	27.9	С	27.9	С						
Halsted St & 101st St	12.7	В	10.8	В	See Alterr	ative	12.4	В		
Halsted St & 103rd St	26.6	С	25.6	С	_		25.6	С		
Halsted St & 107th St	23.3	С	20.5	С			21.7	С		
Halsted St & 111th St	20.4	С	18.3	В			20.8	С		
Halsted St & 114th St	12.9	В	6.8	Α			14.6	В		
Halsted St & 115th St	18.1	В	16.5	В			16.3	В		
Halsted St & 119th St	24.3	С	21.2	С			23.3	С		
Halsted St & 120th St	15.9	В	9.2	Α			11.0	В		
Halsted St & 123rd St	10.1	В	9.3	Α			8.2	Α		
Halsted St & 127th St	31.0	С	28.8	С			29.9	С		
Halsted St & Vermont St	11.8	В	10.5	В			11.1	В		
Halsted St & 134th St	7.9	Α	5.1	Α	8.9	Α				
Halsted St & 138th St	22.0	С	22.3	С	24.3	С				
Halsted St & 144th St	10.8	В	19.0	В	10.9	В				
Halsted St & 147th St	41.4	D	40.6	D	57.2	Е	See Altern	ative		
Halsted St & 149th St	47.2	D	41.6	D	40.7	D	2			
Morgan St & 149th St	13.2	В	13.9	В	17.3 B					
Morgan St & 150th St	19.6	В	19.2	В	19.4	В				
Park Ave & 154th St	7.7	Α	7.6	Α	7.6 A					
Vincennes Ave & 79 <sup>th</sup> Street	22.3	С	33.7	С	See Alternative					
Parnell Ave & 95 <sup>th</sup> Street	11.0	В	16.0	В		See Altern	ative			
Wentworth Ave & 95 <sup>th</sup> Street	11.0	В	14.4	В	1		1			



## Appendix E-1: South Halsted Parking Inventory and Utilization Approximate Number/Location of Spaces Required for Bus Lanes and Queue Jumps

				e Number of king Spaces			Spaces Re	Approximate Number of Spaces Required for Alternatives 1 & 2		Number of quired for tives 3	Approximate Number of Additional Spaces Required for Farside Stations		
Street	Block	Primary Parking Type	East Side of Street	West Side of Street	Primary Land Use	Parking Utilization <sup>‡</sup>	West Side of Street	East Side of Street	West Side of Street	East Side of Street	West Side of Street	East Side of Street	Notes
South Halsted Street	79th to 80th	Paid	17	15	Commercial	10%	0	0	0	0			
South Halsted Street	80th to 81st	Snow Restrictions	17	13	Commercial	19%	7	0	7	0			
South Halsted Street	81st to 82nd	Snow Restrictions	14	14	Commercial	13%	0	8	0	8			
South Halsted Street	82nd to 83rd	Snow Restrictions	20	16	Commercial	12%	7	0	7	0		5	Nearside alternate added for west side
South Halsted Street	83rd to 84th	Snow Restrictions	12	15	Commercial	7%	0	12	0	12	1		Nearside alternate added for west side
South Halsted Street	84th to 85th	Snow Restrictions	12	16	Commercial	0%	0	0	0	0			
South Halsted Street	85th to Vincennes	Peak Hour Restrictions	N/A	N/A	Commercial	N/A	0	0	0	0			
South Halsted Street	Vincennes to 87th	Peak Hour Restrictions	N/A	N/A	Commercial	N/A	8	10	8	10			
South Halsted Street	87th to 88th	Snow Restrictions	11	13	Residential	19%	0	5	0	5			
South Halsted Street	88th to 89th	Snow Restrictions	19	19	Residential	1%	0	0	0	0			
South Halsted Street	89th to 90th	Snow Restrictions	19	19	Residential	14%	0	0	0	0			
South Halsted Street	90th to 91st	Snow Restrictions	12	14	Residential	3%	3	0	3	0			
South Halsted Street	91st to 92nd	Snow Restrictions	21	20	Residential	16%	0	4	0	4			
South Halsted Street	92nd to 93rd	Snow Restrictions	22	15	Residential	17%	0	0	0	0			
South Halsted Street	93rd to 94th	Snow Restrictions	20	23	Residential	38%	0	0	0	0			
South Halsted Street	94th to 95th	Snow Restrictions	18	15	Residential	9%	6	0	6	0			
South Halsted Street	95th to 96th	Snow Restrictions	14	18	Residential	17%	0	8	0	8			
South Halsted Street	96th to 97th	Snow Restrictions	18	20	Residential	25%	0	0	0	0			
South Halsted Street	97th to 98th St	Snow Restrictions	19	18	Residential	11%	8	0	8	0			
South Halsted Street	98th St to 98th PI	No Parking	N/A	N/A	Highway	N/A	0	0	0	0			
South Halsted Street	98th PI to 99th	No Parking	N/A	N/A	Commercial	N/A	0	0	0	0			
South Halsted Street	99th to 100th	Snow Restrictions [W]/ No Parking [E]	11	0	Commercial	1%	0	0	11	0			
South Halsted Street	100th to 101st	Snow Restrictions	12	22	Commercial	2%	7	0	12	22			
South Halsted Street	101st to 102nd	Snow Restrictions	15	15	Commercial	1%	0	3	15	15			
South Halsted Street	102nd to 103rd	Snow Restrictions	18	14	Commercial	17%	7	0	18	14		6	
South Halsted Street	103rd to 104th	Snow Restrictions	13	16	Commercial	7%	0	1	13	16			
South Halsted Street	104th to 105th	Snow Restrictions	20	12	Commercial	0%	0	0	20	12			
South Halsted Street	105th to 106th	Snow Restrictions	19	19	Commercial	0%	0	0	19	19			
South Halsted Street	106th to 107th	Snow Restrictions	18	13	Commercial	2%	9	0	18	13		5	0 if choosing Alt 1
South Halsted Street	107th to 108th	Snow Restrictions	9	17	Commercial	0%	0	7	9	17	1		No other alternates
South Halsted Street	108th to 109th	Snow Restrictions	23	19	Commercial	16%	0	0	23	19			
South Halsted Street	109th to 110th	Snow Restrictions	19	12	Commercial	45%	0	0	19	12			
South Halsted Street	110th to 111th	Snow Restrictions	15	16	Commercial	17%	4	0	15	16		3	
South Halsted Street	111th to 112th	Snow Restrictions	18	19	Commercial	31%	0	8	18	19	4		
South Halsted Street	112th to 113th	Snow Restrictions	19	16	Commercial	2%	0	0	19	16			

				te Number of rking Spaces			Approximate Spaces Re Alternation	equired for	Approximate Spaces Re Alterna	quired for	f Approximate Number of Additional Spaces Required for Farside Stations		
Street	Block	Primary Parking Type	East Side of Street	West Side of Street	Primary Land Use	Parking Utilization <sup>‡</sup>	West Side of Street	East Side of Street	West Side of Street	East Side of Street	West Side of Street	East Side of Street	Notes
South Halsted Street	113th to 114th	Snow Restrictions	18	18	Commercial	1%	3	0	18	18			
South Halsted Street	114th to 115th	Snow Restrictions	19	8	Commercial	3%	7	7	19	8		1	No other alternates
South Halsted Street	115th to 116th	Snow Restrictions	16	7	Commercial	0%	0	6	16	7			2 if choosing Alternate 1
South Halsted Street	116th to 117th	Snow Restrictions	18	18	Commercial	0%	0	0	18	18			
South Halsted Street	117th to 118th	Snow Restrictions	18	18	Commercial	1%	0	0	18	18			
South Halsted Street	118th to 119th	Snow Restrictions	17	12	Commercial	0%	6	0	17	12		2	
South Halsted Street	119th to 120th	Snow Restrictions	16	19	Commercial	8%	6	7	16	19	4		
South Halsted Street	120th to RR Tracks	Snow Restrictions	30	38	Commercial	6%	0	9	30	38	1		
South Halsted Street	RR Tracks to 122nd	Snow Restrictions	0	0	Commercial	0%	0	0	0	0			
South Halsted Street	122nd to 123rd	Snow Restrictions	20	16	Commercial	0%	7	0	20	16			
South Halsted Street	123rd to 124th	Snow Restrictions	20	22	Commercial	24%	0	9	20	22	4	6	
South Halsted Street	124th to 125th	Snow Restrictions	20	20	Commercial	4%	0	0	20	20			1 additional spot affected if nearside (east) Alt 2 is chosen
South Halsted Street	125th to 126th	Snow Restrictions	0	17	Commercial	0%	0	0	0	17			
South Halsted Street	126th to 127th	Snow Restrictions	0	17	Commercial	0%	0	0	0	17		5	
South Halsted Street	127th to Vermont	Snow Restrictions	9	11	Commercial	8%	6	7	9	11			
South Halsted Street	Vermont to 128th	Evening Restrictions	15	21	Commercial	24%	0	12	15	21	5		
South Halsted Street	128th to 129th	Evening Restrictions	22	22	Commercial	2%	0	0	22	22			
South Halsted Street	129th to 130th	No Parking	N/A	N/A	Parkland/Golf Course	N/A	0	0	0	0			
South Halsted Street	130th to 131st	No Parking	N/A	N/A	Parkland/Golf Course	N/A	0	0	0	0			
South Halsted Street	131st to 132nd	No Parking	N/A	N/A	Parkland/Golf Course	N/A	0	0	0	0			
South Halsted Street	132nd to 133th	No Parking	N/A	N/A	Parkland/Golf Course	N/A	0	0	0	0			
South Halsted Street	133th to 134th	No Parking	N/A	N/A	Parkland/Golf Course	N/A	0	0	0	0			
South Halsted Street	134th to 135th	No Parking	N/A	N/A	Industrial	N/A	0	0	0	0			
South Halsted Street	135th to 136th	No Parking	N/A	N/A	Industrial	N/A	0	0	0	0			
South Halsted Street	136th to 137th	No Parking	N/A	N/A	Industrial	N/A	0	0	0	0			
South Halsted Street	137th to 138th	No Parking	N/A	N/A	Industrial	N/A	0	0	0	0			
South Halsted Street	138th to 139th	No Parking	N/A	N/A	Industrial	N/A	0	0	0	0			
South Halsted Street	139th to 140th	No Parking	N/A	N/A	Industrial	N/A	0	0	0	0			
South Halsted Street	140th to 141st	No Parking	N/A	N/A	Industrial	N/A	0	0	0	0			
South Halsted Street	141st to 142nd	No Parking	N/A	N/A	Industrial	N/A	0	0	0	0			
South Halsted Street	142nd to 143th	No Parking	N/A	N/A	Residential/Parkland	N/A	0	0	0	0			
South Halsted Street	143th to 144th	No Parking	N/A	N/A	Residential/Parkland	N/A	0	0	0	0			
South Halsted Street	144th to 145th	No Parking	N/A	N/A	Residential/Parkland	N/A	0	0	0	0			
South Halsted Street	145th to 146th	No Parking	N/A	N/A	Commercial	N/A	0	0	0	0			
South Halsted Street	146th to 147th	No Parking	N/A	N/A	Commercial	N/A	0	0	0	0			
South Halsted Street	147th to 148th	No Parking	N/A	N/A	Commercial	N/A	0	0	0	0			
South Halsted Street	148th to 149th	No Parking	N/A	N/A	Residential	N/A	0	0	0	0			
South Halsted Street	149th to 150th	No Parking	N/A	N/A	Residential/Commercial	N/A	0	0	0	0			
South Halsted Street	150th to 151st	No Parking	N/A	N/A	Residential	N/A	0	0	0	0			
South Halsted Street	151st to 152nd	No Parking	N/A	N/A	Residential/Commercial	N/A	0	0	0	0			
South Halsted Street	152nd to 153th	No Parking	N/A	N/A	Residential/Commercial	N/A	0	0	0	0			
South Halsted Street	153th to 154th	No Parking	N/A	N/A	Residential/Commercial	N/A	0	0	0	0			

				e Number of king Spaces			Approximate Spaces Re Alternation	equired for	Approximate Spaces Re Alterna	quired for	Additional S	mate Number of paces Required for ide Stations	
Street	Block	Primary Parking Type	East Side of Street	West Side of Street	Primary Land Use	Parking Utilization <sup>‡</sup>	West Side of Street	East Side of Street	West Side of Street	East Side of Street	West Side of Street	East Side of Street	Notes
79th Street	Halsted to Emerald†	Paid	7	9	Commercial	11%	7	9	7	9			
79th Street	Emerald to Union†	Snow Restrictions	10	9	Commercial	0%	10	9	10	9			
79th Street	Union to Lowe†	Snow Restrictions	6	10	Commercial	0%	6	10	6	10			
79th Street	Lowe to Normal†	Snow Restrictions	35	25	Commercial	0%	0	0	0	0			
79th Street	Normal to Vincennes†	Snow Restrictions	24	21	Commercial	14%	0	0	0	0			
79th Street	Vincennes to Harvard†	Snow Restrictions	10	10	Commercial	1%	0	0	0	0			
79th Street	Harvard to Princeton†	Snow Restrictions	14	15	Commercial	2%	0	0	0	0			
79th Street	Princeton to Yale†	Snow Restrictions	13	14	Commercial	1%	0	0	0	0			
79th Street	Yale to Wentworth†	Snow Restrictions	14	14	Commercial	2%	0	0	0	0			
79th Street	Wentworth to LaSalle†	Snow Restrictions	14	14	Commercial	2%	0	0	0	0			
79th Street	LaSalle to Perry†	Snow Restrictions	14	14	Commercial	1%	0	0	0	0			
95th Street	Halsted to Emerald†	Snow Restrictions	10	10	Commercial	0%	0	0	0	0			
95th Street	Emerald to Union†	Snow Restrictions	11	11	Commercial	4%	0	0	0	0			
95th Street	Union to Lowe†	Snow Restrictions	11	11	Commercial	0%	0	0	0	0			
95th Street	Lowe to Wallace†	Snow Restrictions	11	11	Commercial	6%	0	0	0	0			
95th Street	Wallace to Parnell†	Snow Restrictions	0	11	Commercial	10%	0	11	0	11			
95th Street	Parnell to Normal†	Snow Restrictions	10	0	Commercial	30%	10	0	10	0			
95th Street	Normal to Eggleston†	Snow Restrictions	20	19	Commercial	25%	0	0	0	0			
95th Street	Eggleston to Harvard†	Snow Restrictions	17	19	Commercial	42%	0	0	0	0			
95th Street	Harvard to Princeton†	Snow Restrictions	9	14	Commercial	40%	0	0	0	0			
95th Street	Princeton to Yale†	Snow Restrictions	14	10	Commercial	29%	0	0	0	0			
95th Street	Yale to Wentworth†	Snow Restrictions	0	8	Commercial	9%	0	8	0	8			
95th Street	Wentworth to La Salle†	Snow Restrictions	10	0	Commercial	3%	10	0	10	0			
95th Street	La Salle to Lafayette†	Snow Restrictions	24	22	Commercial	4%	0	0	0	0			

#### Notes:

†These blocks are located on 79th or 95th Streets, running east-west. For these blocks, spaces on north side of street are listed under west side; space on south side are listed under east

‡Utilization rates are based on walkthrough of the corridor from 10 AM to 3:30 PM on Wednesday, June 13th and from 9 to 9:30 AM on Thursday, June 14th.





## Appendix F: Bus Speed and Reliability

Improving bus speed and reliability is one of the key goals of the South Halsted Bus Corridor Enhancement Project. The roadway treatments proposed as part of Alternative 1, 2, and 3 would improve speed and reliability for CTA and Pace buses operating on the corridor. Bus speed was analyzed by applying accepted factors developed by the Transit Cooperative Research Program (TCRP) and applied to the various elements in each alternative. Reliability was not independently measured but is expected to improve in conjunction with travel time.

Existing PM peak travel times where used as a basis for the analysis, as shown in Table 1. The run times used in the table include the estimate amount of time of travel for each section of the corridor, from 79th Street and Perry Avenue to Pace Harvey Transportation Center plus the travel time between 95th Street Red Line Station and 95th Street & Halsted Street. The average existing bus speeds are based on current scheduled run-time during the PM peak plus average observed delay. Generally, implementing TSP is expected to provide approximately 4 to 8 seconds per intersection, which would result in approximately 3% travel time savings along the entire corridor. Providing an express service offers the largest time savings. It is estimated that upwards of 22% time savings is achieved by reducing the number of instances that a bus must deaccelerate, stop, board and alight passengers, and accelerate. Queue jumps are estimated to provide approximately 6 seconds of travel time savings per intersection. Implementing queue jumps throughout the corridor, as is proposed for Alternate 1, is anticipated to provide approximately 5% travel time savings. Bus lanes are expected to provide approximately 45 seconds of time savings per mile in a typical urban environment like the South Halsted Corridor. The bus lane improvements proposed as part of Alternative 2 and 3 it is anticipated to provide approximately 8% and 10% additional travel time savings, respectively. Table 1 shows a comparison between each alternative, including the total travel time savings for each alternative when combined with TSP and express service. Table 2 through Table 7 provide additional details regarding the travel time calculations summarized in Table 1.

1



## **TABLE 1: ESTIMATED BUS SPEED IMPROVEMENT SUMMARY**

Segment	Travel Time (min.)	Travel Time Savings (min.)	Percent Savings
Existing Conditions	60.1	-	-
TSP	58.3	1.8	3%
Express service - 1/2 Mile Stations <sup>1</sup>	47.2	13.0	22%
Alternative 1 Only	57.3	2.8	5%
Alternative 2 Only	55.1	5.0	8%
Alternative 3 Only	53.8	6.3	10%
Alternative 1 with TSP & 1/2 Mile Stations	42.6	17.6	29%
Alternative 2 with TSP & 1/2 Mile Stations	40.4	19.8	33%
Alternative 3 with TSP & 1/2 Mile Stations	39.0	21.1	35%

<sup>&</sup>lt;sup>1</sup> The time savings percentage calculated is a potential maximum benefit for express service on the corridor for Pace Pulse service and a CTA express route combined. These services may be on different timelines and dependent on available funds.



#### TABLE 2: ESTIMATED BUS SPEED IMPROVEMENTS - INPUTS

Segment	1	2	3	4	5	6	7	Total
Start	79 <sup>th</sup> Red Line	95 <sup>th</sup> Red Line	Halsted & 95 <sup>th</sup>	Halsted & 103 <sup>rd</sup>	Halsted & 111 <sup>th</sup>	Halsted & 119th	Halsted & 127th	
End	Halsted & 95 <sup>th</sup>	Halsted & 95th	Halsted & 103 <sup>rd</sup>	Halsted & 111 <sup>th</sup>	Halsted & 119th	Halsted & 127 <sup>th</sup>	Harvey TC	
Single Direction Route Length (miles)	3.0	1.0	1.0	1.0	1.0	1.0	3.7	11.7
Current Average Speed (mph)	8.5	13.4	12.4	13.1	12.4	12.0	14.5	11.7
Current Travel Time (minutes)	21.1	4.5	4.8	4.6	4.8	5.0	15.3	60.1
Intersections (# of intersections)	10	4	4	2	3	3	10	

#### TABLE 3: ESTIMATED BUS SPEED IMPROVEMENTS - TRANSIT SIGNAL PRIORITY

Segment	1	2	3	4	5	6	7	Total
Start	79th Red Line	95th Red Line	Halsted & 95 <sup>th</sup>	Halsted & 103 <sup>rd</sup>	Halsted & 111th	Halsted & 119th	Halsted & 127th	
End	Halsted & 95th	Halsted & 95th	Halsted & 103 <sup>rd</sup>	Halsted & 111th	Halsted & 119th	Halsted & 127th	Harvey TC	
Time Savings (min)								
TSP (# of Intersections with)	10.0	4.0	4.0	2.0	3.0	3.0	10.0	36.0
TSP Savings (minutes)	0.5	0.2	0.2	0.1	0.2	0.2	0.5	1.8
Total Savings	0.5	0.2	0.2	0.1	0.2	0.2	0.5	1.8
Total Travel Time (minutes)	20.6	4.3	4.6	4.5	4.7	4.9	14.8	58.3
Distance (Miles)	3.0	1.0	1.0	1.0	1.0	1.0	3.7	11.7
Rate of Travel (minutes per mile)	6.9	4.3	4.6	4.5	4.7	4.9	4.0	5.0
Average Speed (mph)	8.8	14.1	13.0	13.3	12.8	12.3	15.0	12.0
% Improvement	-2%	-4%	-4%	-2%	-3%	-3%	-3%	-3%



TABLE 4: ESTIMATED BUS SPEED IMPROVEMENTS - EXPRESS SERVICE

Segment	1	2	3	4	5	6	7	Total
Start	79 <sup>th</sup> Red Line	95th Red Line	Halsted & 95 <sup>th</sup>	Halsted & 103 <sup>rd</sup>	Halsted & 111 <sup>th</sup>	Halsted & 119 <sup>th</sup>	Halsted & 127 <sup>th</sup>	
End	Halsted & 95 <sup>th</sup>	Halsted & 95 <sup>th</sup>	Halsted & 103 <sup>rd</sup>	Halsted & 111 <sup>th</sup>	Halsted & 119 <sup>th</sup>	Halsted & 127 <sup>th</sup>	Harvey TC	
Bus Stops (# of stops)								
Current CTA Stops	24	8	8	8	8	8	-	63
Current Pace Stops	-	2	2	2	2	6	15	29
Proposed CTA Stops	6	1	2	2	2	3	-	16
Proposed Pace Stops	-	1	2	2	2	3	6	16
Time Savings (minutes)								
Dwell/Stop (sec)	18.0	18.0	18.0	18.0	18.0	18.0	18.0	
Express Service Time Savings (minutes)	5.3	1.1	0.9	0.9	0.9	1.2	2.7	13.0
Total Savings	5.3	1.1	0.9	0.9	0.9	1.2	2.7	13.0
Total Travel Time (minutes)	15.8	3.3	3.9	3.7	3.9	3.8	12.6	47.2
Distance (Miles)	3.0	1.0	1.0	1.0	1.0	1.0	3.7	11.7
Rate of Travel (minutes per mile)	5.3	3.3	3.9	3.7	3.9	3.8	3.4	4.0
Average Speed (mph)	11.4	17.9	15.3	16.2	15.2	15.7	17.6	14.9
% Improvement	-25%	-25%	-19%	-20%	-19%	-24%	-18%	-22%



#### TABLE 5: ESTIMATED BUS SPEED IMPROVEMENTS – ALTERNATIVE 1

Segment	1	2	3	4	5	6	7	Total
Start	79 <sup>th</sup> Red Line	95 <sup>th</sup> Red Line	Halsted & 95th	Halsted & 103 <sup>rd</sup>	Halsted & 111th	Halsted & 119th	Halsted & 127th	
End	Halsted & 95th	Halsted & 95th	Halsted & 103 <sup>rd</sup>	Halsted & 111th	Halsted & 119th	Halsted & 127th	Harvey TC	
Time Savings (min)								
Bus Lanes (miles)	-	-	-	-	-	-	-	-
Bus Lane Time Savings (minutes)	-	-	-	-	-	-	-	-
Queue Bypass (# of Intersections with)	9.0	3.0	4.0	2.0	3.0	3.0	4.0	28.0
Queue Bypass Savings (minutes)	0.9	0.3	0.4	0.2	0.3	0.3	0.4	2.8
Total Savings	0.9	0.3	0.4	0.2	0.3	0.3	0.4	2.8
Total Travel Time (minutes)	20.2	4.2	4.4	4.4	4.5	4.7	14.9	57.3
Distance (miles)	3.0	1.0	1.0	1.0	1.0	1.0	3.7	11.7
Rate of Travel (minutes per mile)	6.7	4.2	4.4	4.4	4.5	4.7	4.0	4.9
Average Speed (mph)	8.9	14.4	13.6	13.6	13.2	12.7	14.9	12.2
% Improvement	-4%	-7%	-8%	-4%	-6%	-6%	-3%	-5%





## TABLE 6: ESTIMATED BUS SPEED IMPROVEMENTS – ALTERNATIVE 2

Segment	1	2	3	4	5	6	7	Total
Start	79 <sup>th</sup> Red Line	95th Red Line	Halsted & 95th	Halsted & 103 <sup>rd</sup>	Halsted & 111th	Halsted & 119th	Halsted & 127th	
End	Halsted & 95 <sup>th</sup>	Halsted & 95 <sup>th</sup>	Halsted & 103 <sup>rd</sup>	Halsted & 111 <sup>th</sup>	Halsted & 119 <sup>th</sup>	Halsted & 127 <sup>th</sup>	Harvey TC	
Time Savings (min)								
Bus Lanes (miles)	-	-	-	-	-	-	3.7	3.7
Bus Lane Time Savings (minutes)	-	-	-	-	-	-	2.6	2.6
Queue Bypass (# of Intersections with)	9.0	3.0	4.0	2.0	3.0	3.0	-	24.0
Queue Bypass Savings (minutes)	0.9	0.3	0.4	0.2	0.3	0.3	-	2.4
Total Savings	0.9	0.3	0.4	0.2	0.3	0.3	2.6	5.0
Total Travel Time (minutes)	20.2	4.2	4.4	4.4	4.5	4.7	12.7	55.1
Distance (miles)	3.0	1.0	1.0	1.0	1.0	1.0	3.7	11.7
Rate of Travel (minutes per mile)	6.7	4.2	4.4	4.4	4.5	4.7	3.4	4.7
Average Speed (mph)	8.9	14.4	13.6	13.6	13.2	12.7	17.4	12.7
% Improvement	-4%	-7%	-8%	-4%	-6%	-6%	-17%	-8%

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## TABLE 7: ESTIMATED BUS SPEED IMPROVEMENTS – ALTERNATIVE 3

Segment	1	2	3	4	5	6	7	Total
Start	79 <sup>th</sup> Red Line	95th Red Line	Halsted & 95th	Halsted & 103 <sup>rd</sup>	Halsted & 111th	Halsted & 119th	Halsted & 127th	
End	Halsted & 95th	Halsted & 95 <sup>th</sup>	Halsted & 103 <sup>rd</sup>	Halsted & 111 <sup>th</sup>	Halsted & 119 <sup>th</sup>	Halsted & 127 <sup>th</sup>	Harvey TC	
Time Savings (min)								
Bus Lanes (miles)	-	-	0.6	1.0	1.0	1.0	3.7	7.3
Bus Lane Time Savings (minutes)	-	-	0.4	0.7	0.7	0.7	2.6	5.1
Queue Bypass (# of Intersections with)	9.0	3.0	-	-	-	-	-	12.0
Queue Bypass Savings (minutes)	0.9	0.3	-	-	-	-	-	1.2
Total Savings	0.9	0.3	0.4	0.7	0.7	0.7	2.6	6.3
Total Travel Time (minutes)	20.2	4.2	4.4	3.9	4.1	4.3	12.7	53.8
Distance (miles)	3.0	1.0	1.0	1.0	1.0	1.0	3.7	11.7
Rate of Travel (minutes per mile)	6.7	4.2	4.4	3.9	4.1	4.3	3.4	4.6
Average Speed (mph)	8.9	14.4	13.6	15.4	14.5	13.9	17.4	13.0
% Improvement	-4%	-7%	-9%	-15%	-14%	-14%	-17%	-10%



## **Appendix G: Environmental Screening**

To streamline the environmental review process, the study team conducted a preliminary environmental screening for the proposed transit improvements within the project area. Certain items were identified and flagged for further study in the next phase of the project. This environmental screening focuses on the elements included in the FTA's NEPA CE checklist, which would serve as the template for future environmental analysis. The checklist includes impacts to land use, traffic, historic resources, noise and vibration levels, right-of-way, hazardous materials, social impacts, environmental justice, recreational resources, natural resources, endangered species, safety and security, and construction. The screening focuses on specific areas within the project area and the consideration of potential impacts and avoidance and minimization of sensitive environmental resources. A summary of the impacts is included in Table 1.

The environmental impacts of each alternative are identical in most cases. The primary difference between the alternatives would be that Alterative 1 would have the least impact on traffic, parking, and construction. Alterative 2 would have additional traffic and construction impacts from 129<sup>th</sup> Street to 154<sup>th</sup> Street as compared to Alternative 1. Similarly, Alternative 3 shares these impacts and would also have additional parking and construction impacts from 100<sup>th</sup> Street to 154<sup>th</sup> Street, as compared to Alternative 2.



#### **TABLE 1: SUMMARY OF IMPACTS**

Resources	Level of Impact
Metropolitan Planning and Air Quality Conformity	Low
Land Use and Zoning	Low
Traffic Impacts	Low-Medium
CO Hot Spots	Low
PM2.5 and PM10 Hot Spots	Low
Historic Resources	Low
Visual Quality	Low
Noise	Low
Vibration	Low
Acquisition and Relocations Required	Low
Hazardous Materials	Low
Social Impacts and Community Disruption	Low
Environmental Justice	Low
Use of Public Parkland and Recreation Areas	Low
Impacts to Wetlands	Low
Floodplain Impacts	Low
Impacts on Water Quality, Navigable Waterways, & Coastal Zones	Low
Impacts on Ecologically-Sensitive Areas and Endangered Species	Low
Impacts on Safety and Security	Low
Impacts Caused by Construction	Low

- Metropolitan Planning and Air Quality Conformity The project area is in Cook County, which is not in attainment of the 8-Hour Ozone and lead National Ambient Air Quality Standard (NAAQS) and is in maintenance for particulate matter (PM2.5 and PM10). The project was incorporated into the Chicago Metropolitan Agency for Planning (CMAP) Transportation Improvement Plan (TIP) on October 25, 2018.
- <u>Land Use and Zoning</u> A review of land use along the South Halsted Corridor reveals that the area has been primarily used for industrial, commercial, business, and residential properties. A review of aerial images from Google Earth found that several structures have

been removed or activity at the parcels has ceased, but the designated land use remains valid.

- Traffic Impacts The project would implement designated bus lanes and queue jumps within the South Halsted Corridor. To accommodate the bus lanes and queue jumps, geometric alterations to the roadway and intersections are recommended. This would require repurposing a travel lane or parking in certain areas, resulting in low to moderate impacts to traffic and parking. The exact placement of bus stations is still under consideration, but the final determination would have minimal impacts to the general traffic and parking. Because they involve the repurposing of a general travel lane from 129<sup>th</sup> Street to 154<sup>th</sup>, Alternatives 2 and 3 would result in greater traffic impacts than Alternative 1. Similarly, due to the reduction of parking from 100<sup>th</sup> Street to 129<sup>th</sup> Street, Alternative 3 would impact parking more than Alternatives 1 or 2. No alternatives are anticipated to have significant impacts to traffic or parking.
- <u>CO Hot Spots</u> The project area is in Cook County, which is in attainment for carbon monoxide (CO). No significant impact to CO emissions is anticipated. Therefore, a hot-spot analysis is not anticipated to be required.
- PM2.5 and PM10 Hot Spots The project area is in Cook County, which is in maintenance for particulate matter (PM2.5 and PM10). However, any potential impacts on regional emissions are accounted for in the CMAP TIP. No significant impacts to particulate matter emission are anticipated.
- Historic Resources A half-mile buffer of the project area was reviewed for potential historic resources. The project area is located within or adjacent to any designated or eligible National Register of Historic Places, National Historic Landmark, or Chicago Landmark properties. This includes several potential historic resources located within the project area that are identified in the Chicago Historic Resources Survey (CHRS),<sup>1</sup> the Illinois Historic and Architectural Resources Geographic Information System (HARGIS),<sup>2</sup> and/or the Zoning and Land Use Map for the Chicago Department of Planning and Development.<sup>3</sup> However, no impacts are anticipated. The project would not significantly

<sup>&</sup>lt;sup>1</sup> http://webapps1.cityofchicago.org/landmarksweb/search/home.htm

<sup>&</sup>lt;sup>2</sup> http://gis.hpa.state.il.us/hargis/

<sup>&</sup>lt;sup>3</sup> https://gisapps.cityofchicago.org/ZoningMapWeb/?liab=1&config=zoning

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impact the visual quality, noise levels, or vibration levels in the vicinity of these resources due to the existing traffic and bus activity. All resources identified within the half-mile buffer of the project area are shown in Table 2 and Figure 1. The Ridge Historic District was included in the search due to its large size and proximity to the half-mile buffer of the project area. Resources that should be studied further during Phase 2 are flagged in Table 2. All

TABLE 2: HISTORIC RESOURCES AND HISTORIC DISTRICTS WITHIN THE HALF-MILE BUFFER OF THE PROJECT AREA

impacts would be minimized to the greatest extent possible.

Resource/District	HARGIS	CHRS/Zoning
749-759 W 79th St*		Orange
7947 S Halsted St*	Undetermined	
8059 S Halsted St*	Undetermined	Green
8201 S Halsted St*	Undetermined	Green
8203 S Halsted St*	Undetermined	
749-751 W 82nd St*		Orange
8630 S Emerald Ave*	Undetermined	Orange/Orange
10227 S Halsted St*	Undetermined	Orange/Orange
Pacesetter Gardens Historic District (13604-13736 S. Lowe Ave)	National Register Historic District	
Ridge Historic District	National Register Historic District	
Brainerd Bungalow Historic District	National Register Historic District	
West Chatham Bungalow Historic District	National Register Historic District	

<sup>\*</sup> Should be studied further during Phase 2

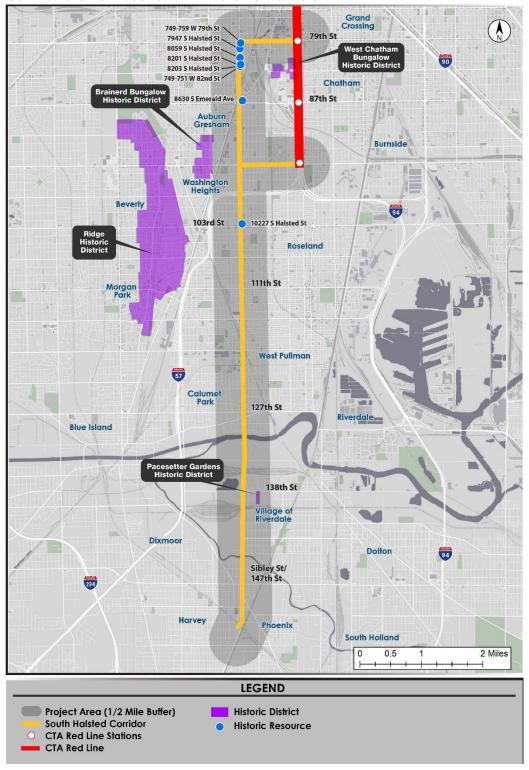
Undetermined: Property is recorded in the HARGIS database, but no determination was made if the property was eligible for the National Register.

Orange: Properties possess some architectural feature or historical association that made them potentially significant in the context of the surrounding community.

Green: Properties are pre-1940s whose exteriors have been slightly altered from their original condition. Properties with this color ranking that are included in the Illinois State Survey (ISS), or located within designated or potential Chicago Landmark districts, were included in the CHRS.



## FIGURE 1: HISTORIC RESOURCES AND HISTORIC DISTRICTS MAP



## CORRIDOR EVALUATION, RECOMMENDATIONS, AND PROJECT STRATEGY

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- Visual Quality The project would not result in significant impacts to visual quality due to the existing levels of traffic and bus activity that occur along the South Halsted Corridor.
- Noise The project would not significantly increase noise levels due to the existing levels of traffic and bus activity that occur along the South Halsted Corridor. Detailed noise analysis is not anticipated to be required for this project.
- <u>Vibration</u> The project would not significantly increase vibration levels and does not include new or relocated steel rails or tracks. Therefore, no impacts from vibration would occur and a general vibration analysis is not anticipated to be required.
- Acquisition and Relocations Required The project would require permanent easements at several locations to accommodate bus stations. No land acquisitions or displacements of residences or business would occur.

<u>Hazardous Materials</u> – In total, 67 sites along the corridor have been documented as containing hazardous materials, which is typical for an urban corridor.

## CORRIDOR EVALUATION, RECOMMENDATIONS, AND PROJECT STRATEGY

#### TECHNICAL MEMORANDUM

Table 3 is a list of the types of facilities with hazardous materials in the corridor by jurisdiction. None of the sites have any documented violations and there is no known hazardous contamination within the project area. If hazardous contamination is found during the planning process, all impacts would be minimized and mitigated to the greatest extent possible. A map of these locations is shown in *Sources: US Environmental Protection Agency (EPA) Envirofacts* (https://enviro.epa.gov)

US EPA EnviroMapper (https://geopub.epa.gov/myem/efmap/index.html)

Illinois EPA Leaking Underground Storage Tank (LUST) Database (https://www2.illinois.gov/epa/topics/cleanup-programs/bol-database/Pages/leaking-ust.aspx)

Illinois EPA Site Remediation Program Database (https://www2.illinois.gov/epa/topics/cleanup-programs/bol-database/Pages/srp.aspx)

Office of the Illinois State Fire Marshal, Division of Petroleum & Chemical Safety (http://webapps.sfm.illinois.gov/ustsearch)

Figure 2. Table 4 provides the listed locations of the sites containing hazardous materials.



## TABLE 3: HAZARDOUS MATERIALS BY FACILITY TYPE AND JURISDICTION

Facility Type	Chicago	Riverdale	Harvey
Automotive Service	5	2	6
Cemetery	0	1	0
Commercial Business	3	1	0
Dry Cleaner	4	0	0
Gas Station	12	1	1
Manufacturing Facility	0	6	0
Pharmacy	2	0	0
Restaurant	1	0	0
Transportation Service	0	3	0
Unknown	6	7	2
Utility	4	0	0

Sources: US Environmental Protection Agency (EPA) Envirofacts (https://enviro.epa.gov)

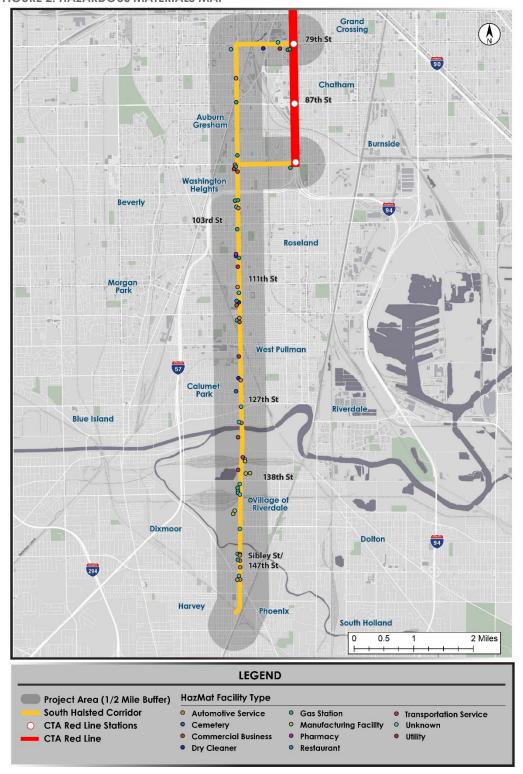
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Illinois EPA Site Remediation Program Database (<a href="https://www2.illinois.gov/epa/topics/cleanup-programs/bol-database/Pages/srp.aspx">https://www2.illinois.gov/epa/topics/cleanup-programs/bol-database/Pages/srp.aspx</a>)

Office of the Illinois State Fire Marshal, Division of Petroleum & Chemical Safety (http://webapps.sfm.illinois.gov/ustsearch)

## FIGURE 2: HAZARDOUS MATERIALS MAP





## **TABLE 4: HAZARDOUS MATERIAL SITE LOCATIONS**

Address	City	Туре
8259 S Halsted St	Chicago	Gas Station
8654 S Vincennes Ave	Chicago	Gas Station
9301 Halsted St	Chicago	Gas Station
9525 S Halsted St	Chicago	Commercial Business
9434 S Halsted St	Chicago	Pharmacy
9900 S Halsted St	Chicago	Gas Station
10000 S Halsted St	Chicago	Unknown
10001 S Halsted St	Chicago	Automotive Service
9901 S Halsted St	Chicago	Gas Station
10301 S Halsted St	Chicago	Gas Station
108th St & Halsted St	Chicago	Utility
10630 S Halsted St	Chicago	Dry Cleaner
10620 S Halsted St	Chicago	Pharmacy
11129 S Halsted St	Chicago	Unknown
11249 S Halsted St	Chicago	Dry Cleaner
11226 S Halsted	Chicago	Restaurant
11453 S Halsted St	Chicago	Unknown
11500 S Halsted St	Chicago	Gas Station
W 120th St & S Halsted St	Chicago	Utility
12256 S Halsted St	Chicago	Dry Cleaner
12307 S Halsted St	Riverdale	Automotive Service
12540 S Halsted St	Riverdale	Cemetery
12635 S Halsted St	Riverdale	Unknown
12853 S Halsted St	Riverdale	Automotive Service
13417 S Halsted St	Riverdale	Manufacturing Facility
13401 S Halsted St	Riverdale	Transportation Service
13600 S Halstead St	Riverdale	Transportation Service
13631 S Halsted St	Riverdale	Manufacturing Facility
13605 S Halsted St	Riverdale	Manufacturing Facility
13759 S Halsted St	Riverdale	Unknown



Address	City	Туре
13856 S Halsted St	Riverdale	Transportation Service
13840 S Halsted St	Riverdale	Unknown
13800 S Halsted St	Riverdale	Gas Station
13860 S Halsted St	Riverdale	Unknown
13900 S Halsted St	Riverdale	Unknown
14100 S Halsted St	Riverdale	Manufacturing Facility
14150 S Halsted St	Riverdale	Manufacturing Facility
14349 S Halsted St	Riverdale	Unknown
14400 S Halsted St	Harvey	Unknown
14459 S Halsted St	Harvey	Automotive Service
14401 S Halsted St	Harvey	Automotive Service
14535 S Halsted St	Harvey	Automotive Service
14407 S Halsted St	Harvey	Automotive Service
14454 S Halsted St	Harvey	Gas Station
147th And Halsted St	Harvey	Unknown
14719 S Halsted St	Harvey	Automotive Service
14720 S Halsted St	Harvey	Automotive Service
140th And Halsted St	Riverdale	Unknown
10655 S Halsted St	Chicago	Gas Station
11048 S Halsted St	Chicago	Automotive Service
11300 S Halsted St	Chicago	Commercial Business
11453 S Halsted St	Chicago	Automotive Service
11525 S Halsted St	Chicago	Commercial Business
12844 S Halsted St	Chicago	Unknown
13100 S Halsted St	Riverdale	Commercial Business
13521 S Halsted St	Riverdale	Manufacturing Facility
8259 S Halsted St	Chicago	Automotive Service
9420 S Halsted St	Chicago	Automotive Service
9458 S Halsted St	Chicago	Gas Station
824 W 95th St	Chicago	Utility
36 W 95th St	Chicago	Gas Station

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Address	City	Туре
825 W 79th St	Chicago	Unknown
408 W 79th St	Chicago	Dry Cleaner
210 W 79th St	Chicago	Unknown
79th & Wentworth Ave	Chicago	Utility
53 W 79th & Perry Ave	Chicago	Gas Station
7900 S Lafayette Ave	Chicago	Gas Station

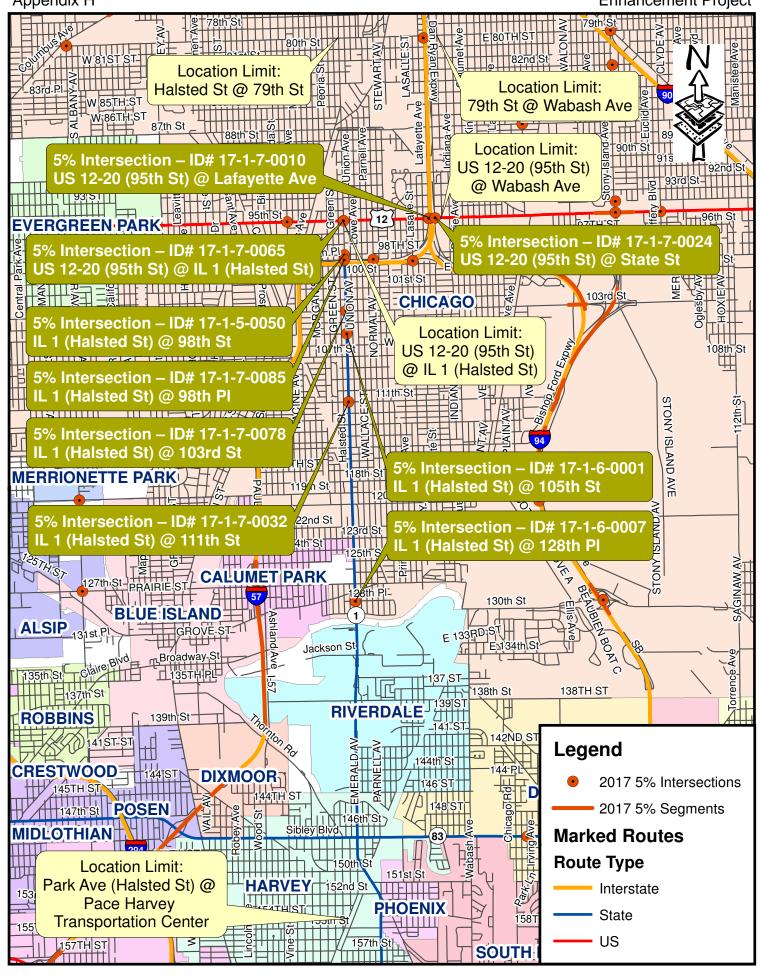
Sources: US EPA Envirofacts, US EPA EnviroMapper, Illinois EPA LUST Database, Illinois EPA Site Remediation Program Database, Office of the Illinois State Fire Marshal, Division of Petroleum & Chemical Safety

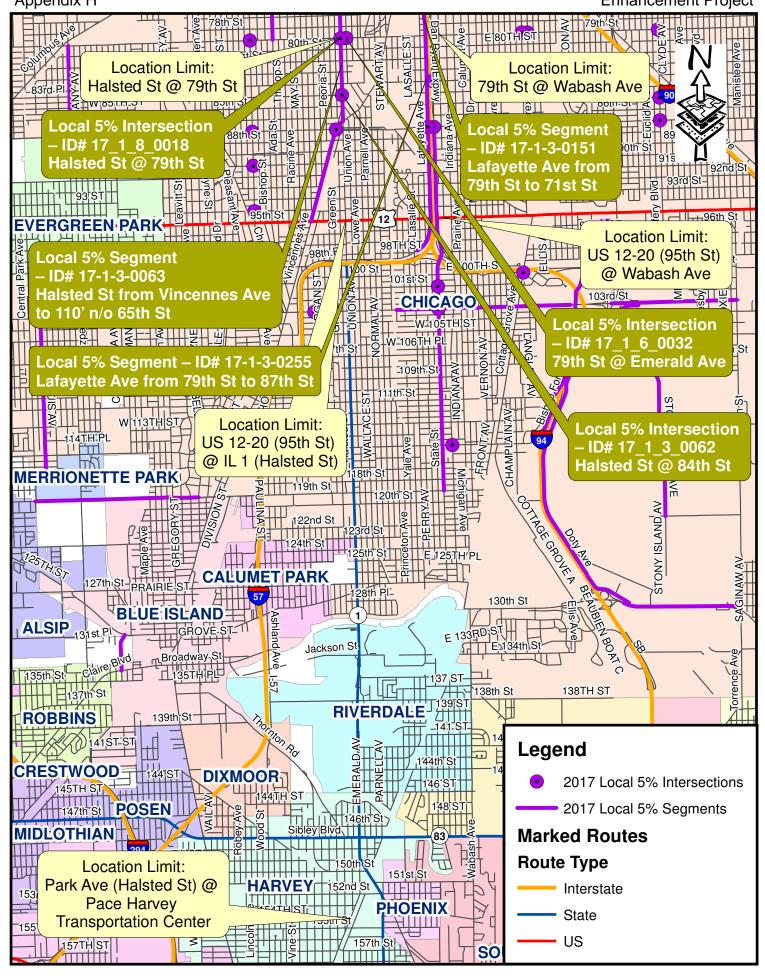
- Social Impacts and Community Disruption This project would have an overall positive impact on the surrounding community. All upgrades and alterations to existing bus stops, sidewalks, and intersections would be updated in compliance with Americans with Disabilities Act (ADA). During construction some community resources would be temporarily disrupted. All impacts to mobility would be minimized and temporary. Notice of potential lane closures would be provided to the appropriate agencies and emergency services.
- Environmental Justice The project is in an area with a high percentage of minority and low-income populations. The project supports these communities by updating and adding transit service improvements. Community members and stakeholders will continue to be involved throughout the planning process.
- <u>Use of Public Parkland and Recreation Areas</u> There are recreational areas and trails along the South Halsted Corridor within the project area. The most notable impact to these Section 4(f) properties occurs at 144<sup>th</sup> Street. Kickapoo Woods is a forest preserve located on the west side of South Halsted Street between 142nd Street and the Little Calumet River. The 144<sup>th</sup> Street southbound Pulse station footprint is proposed to be located on the edge of the preserve, which would require a permanent easement. The station is not anticipated to adversely affect any of the activities, features, or attributes associated with Kickapoo Woods and would likely result in a de minimis impact finding for this resource under Section 4(f). The project area crosses several trails, including the Cal-Sag Trail and the Major Taylor Trail. However, since these trail crossings occur at existing roadways, no use under Section 4(f) is anticipated. During construction, access to these trails may be temporarily disrupted.

# CORRIDOR EVALUATION, RECOMMENDATIONS, AND PROJECT STRATEGY

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- Impacts to Wetlands No National Wetland Inventory (NWI) wetlands are mapped within the project area. Work for the project would primarily occur within existing right-of-way. No impacts to wetlands are anticipated.
- Floodplain Impacts Several floodplains are located within the project area. No bridge alterations are currently in the project plans. Work that may occur within the floodplain would be limited to construction to impervious surfaces, such as the roadway, parking lots, or sidewalks. No significant impacts to floodplains are anticipated.
- Impacts on Water Quality, Navigable Waterways, & Coastal Zones The project area is in Cook County, which is not located within the Mahomet Aquifer. Construction to impervious surfaces may occur. No significant impacts to water quality, navigable waterways, and coastal zones are anticipated.
- Impacts on Ecologically-Sensitive Areas and Endangered Species The project is located along an urban, commercial, and residential area of South Halsted Street, 95th Street, and 79th Street. The US Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) website did not identify any critical habitats within the project area. The USFWS Official Species List identified several listed species within the project area. Since the project is located within an urbanized area and no natural resources would be impacted, the project is not anticipated to have any impacts to any endangered or threatened species.
- Impacts on Safety and Security The project would employ all standard safety practices required by the Federal Transit Administration (FTA) and Illinois Department of Transportation (IDOT). Enhanced security measures would be implemented at bus stations.
- Impacts Caused by Construction The project would incur temporary impacts due to construction. Temporary lane closures may occur. The South Halsted Corridor is located in an urbanized area and therefore Storm Water Quality Best Management Practices (BMPs) would need to be considered. Certain areas of the project would result in soil disturbance, noise, dust, air quality, debris, and erosion impacts. All impacts would be minimized to the greatest extent possible. Construction of bus lanes, as proposed in Alternatives 2 and 3, would be expected to have more impacts than queue jumps. No alternatives are anticipated to have significant impacts.





									Alt 1		Alt 2		Alt 3
Item	Description	Unit	Alt 1	Alt 2	Alt 3		Unit Price	Tot	al (FY 2023)	То	otal (FY 2023)	Tot	tal (FY 2023)
1	Intermediate Pulse Stations	Station	28	28	28	\$	437,066	\$	12,237,848	\$	12,237,848	\$	12,237,848
2	Intermediate CTA Stations	Station	8	8	8	\$	125,071	\$	1,000,568	\$	1,000,568	\$	1,000,568
3	CTA/Pace Stations Terminals	Station	3	3	3	\$	62,872	\$	188,616	\$	188,616	\$	188,616
	CTA 79th Bus Turnaround	Station	1	1	1	\$	3,861,072	\$	3,861,072	\$	3,861,072	\$	3,861,072
	Bus Lane - Parking Lane Reduced (79th St)	Miles	0.19	0.19	0.19	\$	/ -	\$	49,560.00	\$	49,560	\$	49,560
	Bus Lane - Parking Lane Reduced (100th-129th)	Miles			3.7	\$	2,745,603	\$	-	\$	-	\$	10,158,731
7	Bus Lane - Travel Lanes Reduced (98th-100th)	Miles	0.25	0.25	0.25	\$	104,907	\$	26,227	\$	26,227	\$	26,227
8	Bus Lane - Travel Lanes Reduced (129th-154th)	Miles		3.5	3.5	\$	218,589	\$	-	\$	756,317	\$	756,317
9	Other (Civil/Drainage/Miscellaneous other works)	Unit	4,268,884	3,977,106	1,746,830	\$	1	\$	4,268,884	\$	3,977,106	\$	1,746,830
10	Traffic Signal Improvements at Queue Jumps	Intersection	25	21	10	\$	30,000	\$	750,000	\$	630,000	\$	300,000
						S	SUBTOTAL	\$	22,382,775	\$	22,727,314	\$	30,325,769
	PRELIMINARY ENGINEERING 7% OF SUBTOT	AL					7%	\$	1,566,794	\$	1,590,912	\$	2,122,804
	FINAL DESIGN 6% OF SUBTOTAL						6%	\$	1,342,966	\$	1,363,639	\$	1,819,546
	SURVEY COSTS 3% OF SUBTOTAL						3%	\$	671,483	\$	681,819	\$	909,773
	PROJECT MANAGEMENT 10% OF SUBTOTA						10%	\$	2,238,277	\$	2,272,731	\$	3,032,577
CC	ONSTRUCTION MANAGEMENT 9% OF SUBTO	DTAL					9%	\$	2,014,450	\$	2,045,458	\$	2,729,319
	PERMIT COSTS 2% OF SUBTOTAL						2%	\$	447,655	\$	454,546	\$	606,515
	AGENCY STAFF 5% of SUBTOTAL						5%	\$	1,119,139	\$	1,136,366	\$	1,516,288
	CONTINGENCY 35% OF SUBTOTAL						35%	\$	7,833,971	\$	7,954,560	\$	10,614,019
	Total (without Pavement Resurf	acing & Colo	rization)				TOTAL	\$	39,617,511	\$	40,227,346	\$	53,676,611
11	Pavement Resurfacing - Subtotal	Unit	5,977,861	5,977,861	5,977,861	\$	1	\$	5,977,861	\$	- / - /	\$	5,977,861
	Pavement Resurfacing - Soft Costs						77%	\$	4,602,953	\$	4,602,953	\$	4,602,953
	Pavement Resurfacing - Total							\$	10,580,813	\$	10,580,813	\$	10,580,813
	Total (with Pavement F	Resurfacing)					TOTAL	\$	50,198,325	\$	50,808,160	\$	64,257,424
12	Pavement Colorization - Subtotal	Sq. Yard	20,307	63,004	105,158	\$	37.50	\$	761,500	\$	2,362,640	\$	3,943,440
	Pavement Colorization - Soft Costs						77%	\$	586,355	\$	1,819,233	\$	3,036,449
	Pavement Colorization - Total							\$	1,347,855	\$	4,181,873	\$	6,979,889
	Total (with Pavement Resurface	cing & Colori	zation)				TOTAL	\$	51,546,180	\$	54,990,032	\$	71,237,313

				Soi	th Halsted Bus Corrid	or Enhancement Proje	ct - Alternative 1
Line No.	Cost Category	Quantity	Units	Unit Cost	Cost/mile	Total Cost	Remarks
1	Section 1: 79th - 98th Street	2.40	miles		\$546,774.59	\$1,312,259.02	
2	Signs	852	Each	\$515.00	\$182,825.00	\$438,780.00	\$275 post+\$35x5
3	Median Removal	217	Square Yard	\$51.00	\$4,604.17	\$11,050.00	IDOT 66993
4	Curb and Gutter Removal	1,236	Feet	\$11.00	\$5,665.00	\$13,596.00	
5	6" Sub base (Median)	217	Square Yard	\$14.00	\$1,263.89	\$3,033.33	
6	10" PCC (Median)	217	Square Yard	\$113.00	\$10,201.39	\$24,483.33	
7	HMA (Median)	24	Tons	\$226.00	\$2,285.11	\$5,484.27	
8	Concrete Curb and Gutter Installation	1,236	Feet	\$16.00	\$8,240.00	\$19,776.00	
9	Structures to be Adjusted	3	Each	\$1,100.00	\$1,375.00	\$3,300.00	One per mile
	Bus Pads	640	Square Yard	\$128.00	\$34,133.33	\$81,920.00	8 CTA stations/. 1 bus pad/station.80 sq. yd/bus pad. Cost breakdown as follows: Pavement removal: \$18 Sub agg improvement:\$4/sy (assuming 1' depth) Subbase granular material:\$3 11.5" concrete: \$85 Total : \$110/sy in 2015 bid prices 2019: ~ \$120/sy
11	Bus Pads (local stops)	2,320	Square Yard	\$128.00	\$123,733.33	\$296,960.00	29 bus pad for local stations only. 80 sq. yd/bus pad
12	PCC Sidewalk (8")	1,640	Square Feet	\$8.00	\$5,467.12	\$13,121.08	42 stations/11.8 miles of project corridor = 3.56 stations/mile. Assume 192 sqft/station
13	Detectable Tile	640	Square Feet	\$58.00	\$15,466.67	\$37,120.00	8 stations. Assume 80 sqft/station
14	Pavement Marking	31,680	Linear Foot	\$4.00	\$52,800.00	\$126,720.00	Assume 2 skip dash (0.25 length) and 2 solid yellow lines along entire corridor
15	Traffic Signal Improvement	7	Intersection	\$33,845.00	\$98,714.58	\$236,915.00	Typical signal addition and wiring from various TSM, assume controller and cabinet replacement is not needed
16	Section 2: 98th - 100th Street	0.25	miles	A40	\$104,907.12	\$56,946.78	
17	Bus Pads (local stops)	240	Square Yard	\$128.00	\$122,880.00	\$30,720.00	3 local stops, 80 sq. yd/bus pad.
18	PCC Sidewalk (8")	171	Square Feet	\$8.00	\$5,467.12	\$1,366.78	42 stations/11.8 miles of project corridor = 3.56 stations/mile. Assume 192 sqft/station
19	Pavement Marking	5,940	Linear Foot	\$4.00	\$95,040.00	\$23,760.00	Assume 2 skip dash (0.25 length) and 2 solid yellow lines along entire corridor
20	Structures to be Adjusted	1	Each	\$1,100.00	\$4,400.00	\$1,100.00	One per mile
21	Section 3: 100th - 129th Street	3.70	miles		\$706,446.56	\$2,613,852.28	
22	Signs	228	Each	\$515.00	\$31,735.14	\$117,420.00	
23	Pavement Removal (Median)	969	Square Yard	\$20.00	\$5,237.24	\$19,377.78	
24	Median Removal	1,222	Square Yard	\$51.00	\$16,848.38	\$62,339.00	
25	Planter Median Removal	163	Square Yard	\$76.00	\$3,357.24	\$12,421.78	
26	Curb and Gutter Removal	8,221	Feet	\$11.00	\$24,440.81	\$90,431.00	
27	Sidewalk Removal	872	Square Feet	\$3.00	\$707.03	\$2,616.00	
28	6" Sub base (Median)	2,069	Square Yard	\$14.00	\$7,830.33	\$28,972.22	
29	10" PCC (Median)	2,069	Square Yard	\$113.00	\$63,201.95	\$233,847.22	
30	HMA (Median)	2,025	Tons	\$226.00	\$123,717.82	\$457,755.94	
31	Concrete Curb and Gutter Installation	8,221	Feet	\$16.00	\$35,550.27	\$131,536.00	
32	PCC Sidewalk	872	Square Feet	\$6.00	\$1,414.05	\$5,232.00	
33	Bus Pads (local stops)	880	Square Yard	\$128.00	\$30,443.24	\$112,640.00	11 local stops 80 sq. yd/bus pad
34	PCC Sidewalk (8")	2,529	Square Feet	\$8.00	\$5,467.12	\$20,228.34	42 stations/11.8 miles of project corridor = 3.56 stations/mile. Assume 192 sqft/station
35	Catch Basin Removal	36	Each	\$451.00	\$4,388.11	\$16,236.00	Assume 6 catch basin relocations per intersection widening. 6 intersections widened.
36	Storm Sewer Removal	1,440	Feet	\$28.00	\$10,897.30	\$40,320.00	Assume 6 catch basin relocations per intersection widening. 6 intersections widened.
37	Catch Basin	36	Each	\$4,948.00	\$48,142.70	\$178,128.00	Assume 6 catch basin relocations per intersection widening. 6 intersections widened.
38	Storm Sewer	1,440	Feet	\$156.00	\$60,713.51	\$224,640.00	Assume 6 catch basin relocations per intersection widening. 6 intersections widened.
39	Trench & Backfill (drainage)	72	Cubic Yard	\$116.00	\$2,257.30	\$8,352.00	Assume 6 catch basin relocations per intersection widening. 6 intersections widened.
40	Pavement Marking	48,840	Linear Foot	\$4.00	\$52,800.00	\$195,360.00	Assume 2 skip dash (0.25 length) and 2 solid yellow lines along entire corridor
41	Traffic Signal Improvement	11	Intersection	\$33,845.00	\$100,620.27	\$372,295.00	Typical signal addition and wiring from various TSM, assume controller and cabinet replacement is not needed
42	Pole Relocation	24	Each	\$1,157.00	\$7,504.86	\$27,768.00	3 poles/approach being widened
43	Foundations	24	Each	\$1,157.00	\$7,504.86	\$27,768.00	3 foundations/approach being widened
44	Remove Existing Pole & Foundation	24	Each	\$1,157.00	\$7,504.86	\$27,768.00	3 poles+foundations/approach being widened
45	Cable	4,000	Linear Foot	\$7.00	\$7,567.57	\$28,000.00	500/approach being widened, assume NO. 14 3C
46	Conduit	4,000	Linear Foot	\$13.00	\$14,054.05	\$52,000.00	500/approach being widened, assume 2' conduit
47	Trench & Backfill (lighting)	4,000	Foot	\$19.00	\$20,540.54	\$76,000.00	500/approach being widened
48	Miscellaneous	8	Each	\$5,000.00	\$10,810.81	\$40,000.00	\$5000/approach being widened. Benches, trash receptacles, other ancillary roadway features to be relocated
49	Structures to be Adjusted	4	Each	\$1,100.00	\$1,189.19	\$4,400.00	One per mile
50	Section 4: 129th - 154th Street	3.46	miles	04.00	\$113,909.54	\$394,127.01	Assume O able deals (O Of Leagh) and O called college lines along a fine of the college of the c
51	Pavement Marking	45,672	Linear Foot	\$4.00	\$52,800.00	\$182,688.00	Assume 2 skip dash (0.25 length) and 2 solid yellow lines along entire corridor
52	PCC Sidewalk (8")	2,365	Square Feet	\$8.00	\$5,467.12	\$18,916.23	42 stations/11.8 miles of project corridor = 3.56 stations/mile. Assume 192 sqft/station
53	Detectable Tile	985	Square Feet	\$58.00	\$16,515.25	\$57,142.78	42 stations/11.8 miles of project corridor = 3.56 stations/mile. Assume 80 sqft/station
54	Traffic Signal Improvement	4	Intersection	\$33,845.00	\$39,127.17	\$135,380.00	Typical signal addition and wiring from various TSM, assume controller and cabinet replacement is not needed
55	Section 5: 79th - 154th Street	9.81	miles	A 107 000 0	\$1,796,794.50	\$17,626,554.00	
56	Pace Pulse Station	28	Each	\$437,066.00	\$1,247,487.05	\$12,237,848.00	
57	CTA Station	8	Each	\$125,071.00	\$101,994.70	\$1,000,568.00	
58	CTA/PACE Terminal Station	3	Each	\$62,872.00	\$19,226.91	\$188,616.00	

	1					1	
59	Upgrades to CTA 79th Bus Turnaround	1	Lsum	\$3,861,072.00	\$393,585.32	\$3,861,072.00	
60	Traffic Signal Improvement	10	Each	\$33,845.00	\$34,500.51	\$338,450.00	10 locations to be determined
61	Section 6: 79th Street	1.0	miles		\$432,940.70	\$242,128.25	
62	Overhead Signs	6	Each	\$6,940.00	\$219,157.89	\$41,640.00	Bus lane from Halsted St - Lowe Ave (3 blocks), approximately 1000' (.19 miles) overhead structure for the three intersections not signalized
63	Pavement Marking	1,980	Linear Foot	\$4.00	\$41,684.21	\$7,920.00	Assume a double yellow line along section containing bus lane
64	Bus Pads	160	Square Yard	\$128.00	\$10.34	\$20,480.00	2 stations on 79th. 1 bus pad/station. 80 sq. yd/bus pad
65	Bus Pads (local stops)	880	Square Yard	\$128.00	\$112,640.00	\$112,640.00	11 local stations, 80 sq. yd/bus pad
66	PCC Sidewalk (8")	1,136	Square Feet	\$8.00	\$9,088.00	\$9,088.00	3 stopping on 79th St. Assume 192 sqft/station plus 560 SF for Bus stopping at 79th and Perry before turnaround
67	Detectable Tile	285	Square Feet	\$58.00	\$16,515.25	\$16,515.25	42 stations/11.8 miles of project corridor = 3.56 stations/mile. Assume 80 sqft/station
68	Traffic Signal Improvement	1	Intersection	\$33,845.00	\$33,845.00	\$33,845.00	Vincennes Ave
69	Section 7: 95th Street	1.0	miles		\$233,032.37	\$233,032.37	
70	Bus Pads (local stops)	1,120	Square Yard	\$128.00	\$143,360.00	\$143,360.00	14 local stations, 80 sq. yd/bus pad
71	PCC Sidewalk (8")	683	Square Feet	\$8.00	\$5,467.12	\$5,467.12	42 stations/11.8 miles of project corridor = 3.56 stations/mile. Assume 192 sqft/station
72	Detectable Tile	285	Square Feet	\$58.00	\$16,515.25	\$16,515.25	42 stations/11.8 miles of project corridor = 3.56 stations/mile. Assume 80 sqft/station
73	Traffic Signal Improvement	2	Intersection	\$33,845.00	\$67,690.00	\$67,690.00	Parnell Ave and Wentworth Ave
	SUBT	OTAL			\$1,903,378	\$22,478,900	
	PRELIMINARY ENGINEER	ING 7% OF S	UBTOTAL		\$133,236	\$1,573,523	
	FINAL DESIGN	6% OF SUBTOTA	AL		\$114,203	\$1,348,734	
	PROJECT MANAGEMEN	T 10% OF SU	IBTOTAL		\$190,338	\$2,247,890	
	CONSTRUCTION MANAGEM	MENT 9% OF	SUBTOTAL		\$171,304	\$2,023,101	
	INSURANCE AND PERMIT CO	OSTS 2% OF	SUBTOTAL		\$38,068	\$449,578	
	SURVEY COSTS	3% OF SUBTO	TAL		\$57,101	\$674,367	
	AGENCY STAFF	5% OF SUBTO	ΓAL		\$95,169	\$1,123,945	
		35% OF SUBTO			\$666,182	\$7,867,615	
	TOT	ΓAL			\$3,368,980	\$39,787,652	\$3,368,980
					+-,-50,000	+55,.01,00 <u>2</u>	40,000,000

#### NOTES AND ASSUMPTIONS

Limit of construction is assumed to span approximately 10 miles from the center of 79th Street to the Center of 154th Street.

The unit price for items in Line Nos. 2-5, 9, 12-14, 18, 20, 23-26, 30, and 40 are based on IDOT bid prices (2015)

The unit price for items in Line Nos. 6-7, 15-16, 27-28 are based on Belmont Ave. NTP - Reference Division 90% Cost Estimate (proj. 3112)

The unit prices for items in Line Nos. 8, 17, 29, 31, 33-36, 48-49 are based on the JBFRT Summary of Quantities (proj. 3106)

The unit prices for items in Line Nos. 37 & 51 are based on TCRP Report 118.

				South	Halsted Bus Corridor E	nhancement Project -	Alternative 2
Line No.	Cost Category	Quantity	Units	Unit Cost	Cost/mile	Total Cost	Remarks
1	Section 1: 79th - 98th Street	2.40	miles		\$546,774.59	\$1,312,259.02	
2	Signs	852	Each	\$515.00	\$182,825.00	\$438,780.00	
3	Median Removal	217	Square Yard	\$51.00	\$4,604.17	\$11,050.00	
4	Curb and Gutter Removal	1,236	Feet	\$11.00	\$5,665.00	\$13,596.00	
5	6" Sub base (Median)	217	Square Yard	\$14.00	\$1,263.89	\$3,033.33	
6	10" PCC (Median)	217	Square Yard	\$113.00	\$10,201.39	\$24,483.33	
7	HMA (Median)	24	Tons	\$226.00	\$2,285.11	\$5,484.27	
8	Concrete Curb and Gutter Installation	1,236	Feet	\$16.00	\$8,240.00	\$19,776.00	
9	Structures to be Adjusted	3	Each	\$1,100.00	\$1,375.00	\$3,300.00	
10 11	Bus Pads	640 2,320	Square Yard	\$128.00 \$128.00	\$34,133.33	\$81,920.00 \$296,960.00	8 CTA stations
11	Bus Pads (local stops) PCC Sidewalk (8")	1,640	Square Yard Square Feet	\$8.00	\$123,733.33 \$5,467.12	\$13,121.08	29 local stops, bus pad for local stations only. 80 sq. yd/bus pad 42 stations/11.8 miles of project corridor = 3.56 stations/mile. Assume 192 sqft/station
13	Detectable Tile	640	Square Feet	\$58.00	\$15,466.67	\$37,120.00	8. Assume 80 sqft/station
14	Pavement Marking	31,680	Linear Foot	\$4.00	\$52,800.00	\$126,720.00	o. Assume ou squistation
15	Traffic Signal Improvement	7	Intersection	\$33,845.00	\$98,714.58	\$236,915.00	Typical signal addition and wiring from various TSM, assume controller and cabinet replacement is not needed
16	Section 2: 98th - 100th Street	0.25	miles	ψου,υ-υ.υυ	\$104,907.12	\$56,946.78	rypical signal addition and willing from various 15w, assume controller and cabinet replacement is not needed
17	Bus Pads (local stops)	240	Square Yard	\$128.00	\$122,880.00	\$30,720.00	3 local stops, 80 sq. yd/bus pad.
18	PCC Sidewalk (8")	171	Square Feet	\$8.00	\$5,467.12	\$1,366.78	42 stations/11.8 miles of project corridor = 3.56 stations/mile. Assume 192 sqft/station
19	Pavement Marking	5,940	Linear Foot	\$4.00	\$95,040.00	\$23,760.00	Assume 2 skip dash (0.25 length) and 2 solid yellow lines along entire corridor
20	Structures to be Adjusted	1	Each	\$1,100.00	\$4,400.00	\$1,100.00	, (* * * * <b>y</b> ) * * * * * * * * * * * * * * * * * *
21	Section 3: 100th - 129th Street	3.70	miles	, , , , , , , , , , , , , , , , , , , ,	\$706,446.56	\$2,613,852.28	
22	Signs	228	Each	\$515.00	\$31,735.14	\$117,420.00	
23	Pavement Removal (Median)	969	Square Yard	\$20.00	\$5,237.24	\$19,377.78	
24	Median Removal	1,222	Square Yard	\$51.00	\$16,848.38	\$62,339.00	
25	Planter Median Removal	163	Square Yard	\$76.00	\$3,357.24	\$12,421.78	
26	Curb and Gutter Removal	8,221	Feet	\$11.00	\$24,440.81	\$90,431.00	
27	Sidewalk Removal	872	Square Feet	\$3.00	\$707.03	\$2,616.00	
28	6" Sub base (Median)	2,069	Square Yard	\$14.00	\$7,830.33	\$28,972.22	
29	10" PCC (Median)	2,069	Square Yard	\$113.00	\$63,201.95	\$233,847.22	
30	HMA (Median)	2,025	Tons	\$226.00	\$123,717.82	\$457,755.94	
31	Concrete Curb and Gutter Installation	8,221	Feet	\$16.00	\$35,550.27	\$131,536.00	
32	PCC Sidewalk	872	Square Feet	\$6.00	\$1,414.05	\$5,232.00	
33	Bus Pads (local stops)	880	Square Yard	\$128.00	\$30,443.24	\$112,640.00	11 local stops 80 sq. yd/bus pad
34	PCC Sidewalk (8")	2,529	Square Feet	\$8.00	\$5,467.12	\$20,228.34	42 stations/11.8 miles of project corridor = 3.56 stations/mile. Assume 192 sqft/station
35	Catch Basin Removal	36	Each	\$451.00	\$4,388.11	\$16,236.00	Assume 6 catch basin relocations per intersection widening. 6 intersections widened.
36	Storm Sewer Removal	1,440	Feet	\$28.00	\$10,897.30	\$40,320.00	Assume 6 catch basin relocations per intersection widening. 6 intersections widened.
37	Catch Basin	36	Each	\$4,948.00	\$48,142.70	\$178,128.00	Assume 6 catch basin relocations per intersection widening. 6 intersections widened.
38	Storm Sewer	1,440	Feet	\$156.00	\$60,713.51	\$224,640.00	Assume 6 catch basin relocations per intersection widening. 6 intersections widened.
39 40	Trench & Backfill (drainage) Pavement Marking	72 48,840	Cubic Yard Linear Foot	\$116.00 \$4.00	\$2,257.30 \$52,800.00	\$8,352.00 \$195,360.00	Assume 6 catch basin relocations per intersection widening. 6 intersections widened.
41	Traffic Signal Improvement	11	Intersection	\$33,845.00	\$100,620.27	\$372,295.00	Assume 2 skip dash (0.25 length) and 2 solid yellow lines along entire corridor
42	Pole Relocation	24	Each	\$1,157.00	\$7,504.86	\$27,768.00	Typical signal addition and wiring from various TSM, assume controller and cabinet replacement is not needed
43	Foundations	24	Each	\$1,157.00	\$7,504.86	\$27,768.00	3 poles/approach being widened 3 foundations/approach being widened
44	Remove Existing Pole & Foundation	24	Each	\$1,157.00	\$7,504.86	\$27,768.00	3 poles+foundations/approach being widened
45	Cable	4,000	Linear Foot	\$7.00	\$7,567.57	\$28,000.00	500'/approach being widened, assume NO. 14 3C
46	Conduit	4,000	Linear Foot	\$13.00	\$14,054.05	\$52,000.00	500/approach being widened, assume 2' conduit
47	Trench & Backfill (lighting)	4,000	Feet	\$19.00	\$20,540.54	\$76,000.00	500'/approach being widened
48	Miscellaneous	8	Each	\$5,000.00	\$10,810.81	\$40,000.00	\$5000/approach being widened
49	Structures to be Adjusted	4	Each	\$1,100.00	\$1,189.19	\$4,400.00	· · · · · · · · · · · · · · · · · · ·
50	Section 4: 129th - 154th Street	3.46	miles	ψ1,130.00	\$218,588.74	\$756,317.03	
51	Overhead Signs	30.00	Each	\$6,940.00	\$60,173.41	\$208,200.00	
52	Signs	10.00	Each	\$5,940.00	\$1,488.44	\$5,150.00	
53	-	180	Each	\$1,100.00	\$1,466.44	\$198,000.00	assume 5 per block - 36 blocks
53	Structures to be Adjusted	1,250		\$1,100.00	\$3,973.99		
	Curb and Gutter Removal		Feet			\$13,750.00	assume 50 ft/ block x 36 blocks
55	Concrete Curb and Gutter Installation	1,250	Feet	\$16.00	\$5,780.35	\$20,000.00	
56	Pavement Marking	73,075	Linear Foot	\$4.00	\$84,480.00	\$292,300.80	Assume 2 skip dash (0.25 length) and 2 solid yellow lines along entire corridor
57	PCC Sidewalk (8")	2,365	Square Feet	\$8.00	\$5,467.12	\$18,916.23	42 stations/11.8 miles of project corridor = 3.56 stations/mile. Assume 192 sqft/station
58	Section 5: 79th - 154th Street	9.81	miles		\$1,796,794.50	\$17,626,554.00	
59	Pace Pulse Station	28	Each	\$437,066.00	\$1,247,487.05	\$12,237,848.00	
	CTA Station	8	Each	\$125,071.00	\$101,994.70	\$1,000,568.00	
60 61	CTA/PACE Terminal Station	3	Each	\$62,872.00	\$19,226.91	\$188,616.00	

62	Upgrades to CTA 79th Bus Turnaround	1	Lsum	\$3,861,072.00	\$393,585.32	\$3,861,072.00	
63	Traffic Signal Improvement	10	Each	\$33,845.00	\$34,500.51	\$338,450.00	10 locations to be determined
64	Section 6: 79th Street	1.0	miles		\$418,463.11	\$225,613.00	
65	Overhead Signs	6	Each	\$6,940.00	\$219,157.89	\$41,640.00	Bus lane from Halsted St - Lowe Ave (3 blocks), approximately 1000' (.19 miles)
66	Pavement Marking	1,980	Linear Foot	\$4.00	\$41,684.21	\$7,920.00	Assume a double yellow line along section containing bus lane
67	Bus Pads	160	Square Yard	\$128.00	\$2,048.00	\$20,480.00	2 stations on 79th. 1 bus pad/station. 80 sq. yd/bus pad
68	Bus Pads (local stops)	880	Square Yard	\$128.00	\$112,640.00	\$112,640.00	11 local stops, 80 sq. yd/bus pad
69	PCC Sidewalk (8")	1,136	Square Feet	\$8.00	\$9,088.00	\$9,088.00	3 stations on 79th. Assume 192 sqft/station plus 560 SF of sidewalk for bus stopping at 79th and Perry before entering turnaround
70	Traffic Signal Improvement	1	Intersection	\$33,845.00	\$33,845.00	\$33,845.00	Vincennes Ave
71	Section 7: 95th Street	1.0	miles		\$216,517.12	\$216,517.12	
72	Bus Pads (local stops)	1,120	Square Yard	\$128.00	\$143,360.00	\$143,360.00	14 local stops, 80 sq. yd/bus pad
73	PCC Sidewalk (8")	683	Square Feet	\$8.00	\$5,467.12	\$5,467.12	42 stations/11.8 miles of project corridor = 3.56 stations/mile. Assume 192 sqft/station
74	Traffic Signal Improvement	2	Intersection	\$33,845.00	\$67,690.00	\$67,690.00	Parnell Ave and Wentworth Ave
	SUBT	OTAL			\$1,931,250	\$22,808,059	
	PRELIMINARY ENGINEERI	ING 7% OF S	UBTOTAL		\$135,187	\$1,596,564	
	FINAL DESIGN 6	6% OF SUBTOT	AL		\$115,875	\$1,368,484	
	PROJECT MANAGEMENT	T 10% OF SU	IBTOTAL		\$193,125	\$2,280,806	
	CONSTRUCTION MANAGEM	IENT 9% OF	SUBTOTAL		\$173,812	\$2,052,725	
	INSURANCE AND PERMIT CO	OSTS 2% OF	SUBTOTAL		\$38,625	\$456,161	
	SURVEY COSTS	3% OF SUBTO	TAL		\$57,937	\$684,242	
	AGENCY STAFF	5% OF SUBTO	TAL		\$96,562	\$1,140,403	
	CONTINGENCY	35% OF SUBTO	TAL		\$675,937	\$7,982,821	
	ТОТ	AL			\$3,418,312	\$40,370,265	\$3,418,312

#### NOTES AND ASSUMPTIONS

Limit of construction is assumed to span approximately 10 miles from the center of 79th Street to the Center of 154th Street.

The unit price for items in Line Nos. 2-5, 9, 12-14, 18, 20, 23-26, 30, and 40 are based on IDOT bid prices (2015)

The unit price for items in Line Nos. 6-7, 15-16, 27-28 are based on Belmont Ave. NTP - Reference Division 90% Cost Estimate (proj. 3112)

The unit prices for items in Line Nos. 8, 17, 29, 31, 33-36, 48-49 are based on the JBFRT Summary of Quantities (proj. 3106)

The unit prices for items in Line Nos. 37 & 52 are based on TCRP Report 118.

				South I	lalsted Bus Corridor E	nhancement Project -	Alternative 3
Line No.	Cost Category	Quantity	Units	Unit Cost	Cost/mile	Total Cost	Remarks
1	Section 1: 79th - 98th Street	2.40	miles		\$549,088.72	\$1,317,812.92	
2	Signs	852	Each	\$515.00	\$182,825.00	\$438,780.00	
3	Median Removal	217	Square Yard	\$51.00	\$4,604.17	\$11,050.00	
4	Curb and Gutter Removal	1,236	Feet	\$11.00	\$5,665.00	\$13,596.00	
5	6" Sub base (Median)	217	Square Yard	\$14.00	\$1,263.89	\$3,033.33	
6	10" PCC (Median)	217	Square Yard	\$113.00	\$10,201.39	\$24,483.33	
7	HMA (Median)	24	Tons	\$226.00	\$2,285.11	\$5,484.27	
8	Concrete Curb and Gutter Installation	1,236	Feet	\$16.00	\$8,240.00	\$19,776.00	
9	Structures to be Adjusted	3	Each	\$1,100.00	\$1,375.00	\$3,300.00	10 - 11 - 14 - 15 - 15 - 15 - 15 - 15 - 15
10	Bus Pads	683 2,320	Square Yard	\$128.00	\$36,447.46	\$87,473.90	42 stations/11.8 miles of project corridor = 3.56 stations/mile. 1 bus pad/station. 80 sq. yd/bus pad
11	Bus Pads (local stops)		Square Yard	\$128.00	\$123,733.33	\$296,960.00	29 local stops, 80 sq. yd/bus pad
12	PCC Sidewalk (8") Detectable Tile	1,640 640	Square Feet Square Feet	\$8.00 \$58.00	\$5,467.12 \$15,466.67	\$13,121.08 \$37,120.00	42 stations/11.8 miles of project corridor = 3.56 stations/mile. Assume 192 sqft/station  8. Assume 80 sqft/station
14	Pavement Marking	31,680	Linear Foot	\$4.00	\$52,800.00	\$126,720.00	'
15	Traffic Signal Improvement	7	Intersection	\$33,845.00	\$98,714.58	\$236,915.00	Assume 2 skip dash (0.25 length) and 2 solid yellow lines along entire corridor
16	Section 2: 98th - 100th Street	0.25	miles	ψ00,040.00	\$104,907.12	\$56,946.78	Typical signal addition and wiring from various TSM, assume controller and cabinet replacement is not needed
17	Bus Pads (local stops)	240	Square Yard	\$128.00	\$122,880.00	\$30,720.00	3 local stops, 80 sq. yd/bus pads
18	PCC Sidewalk (8")	171	Square Feet	\$8.00	\$5,467.12	\$1,366.78	42 stations/11.8 miles of project corridor = 3.56 stations/mile. Assume 192 sqft/station
19	Pavement Marking	5,940	Linear Foot	\$4.00	\$95,040.00	\$23,760.00	Assume 2 skip dash (0.25 length) and 2 solid yellow lines along entire corridor and 2 solid white lines
20	Structures to be Adjusted	1	Each	\$1,100.00	\$4,400.00	\$1,100.00	Produito 2 stup dash (0.20 iongin) and 2 solid yellow lines along entire contact and 2 solid write lines
21	Section 3: 100th - 129th Street	3.70	miles	ψ.,.σσ.σσ	\$2,745,602.85	\$10,271,370.56	
22	Bus Pads (local stops)	880	Square Yard	\$128.00	\$30,443.24	\$112,640.00	11 local stops 80 sq. yd/bus pad
23	Overhead Signs	44	Each	\$6,940.00	\$82,529.73	\$305,360.00	11 local stops to sq. yarbas pad
24	Signs	22	Each	\$515.00	\$3,062.16	\$11,330.00	
25	Pavement Removal (Median)	10,938	Square Yard	\$20.00	\$59,123.12	\$218,755.56	
26	Median Removal	6,578	Square Yard	\$51.00	\$90,674.32	\$335,495.00	\$2,776,046.10
27	Curb and Gutter Removal	63,930	Feet	\$11.00	\$190,062.16	\$703,230.00	Φ2,710,040.10
28	Sidewalk Removal	30,925	Square Feet	\$3.00	\$25,074.32	\$92,775.00	
29	6" Sub base (Median)	19,783	Square Yard	\$14.00	\$74,855.86	\$276,966.67	
30	10" PCC (Median)	19,783	Square Yard	\$113.00	\$604,193.69	\$2,235,516.67	
31	HMA (Median)	5,539	Tons	\$226.00	\$338,348.47	\$1,251,889.33	
32	Concrete Curb and Gutter Installation	63,930	Feet	\$16.00	\$276,454.05	\$1,022,880.00	
33	PCC Sidewalk	30,925	Square Feet	\$6.00	\$50,148.65	\$185,550.00	
34	PCC Sidewalk (8")	2,529	Square Feet	\$8.00	\$5,467.12	\$20,228.34	42 stations/11.8 miles of project corridor = 3.56 stations/mile. Assume 192 sqft/station
35	Catch Basin Removal	162	Each	\$451.00	\$19,746.49	\$73,062.00	Assume 6 catch basin relocations per intersection widening. 27 intersections widened.
36	Storm Sewer Removal	6,480	Feet	\$28.00	\$49,037.84	\$181,440.00	Assume 6 catch basin relocations per intersection widening. 27 intersections widened.
37	Catch Basin	162	Each	\$4,948.00	\$216,642.16	\$801,576.00	Assume 6 catch basin relocations per intersection widening. 27 intersections widened.
38	Storm Sewer	6,480	Feet	\$156.00	\$273,210.81	\$1,010,880.00	Assume 6 catch basin relocations per intersection widening. 27 intersections widened.
39	Trench & Backfill (drainage)	324	Cubic Yard	\$116.00	\$10,157.84	\$37,584.00	Assume 6 catch basin relocations per intersection widening. 27 intersections widened.
40	Pavement Marking	87,912	Linear Foot	\$4.00	\$95,040.00	\$351,648.00	Assume 2 skip dash (0.25 length) and 2 solid yellow lines along entire corridor and 2 solid white lines
41	Pole Relocation	84	Each	\$1,157.00	\$26,267.03	\$97,188.00	3 poles/approach being widened
42	Foundations	84	Each	\$1,157.00	\$26,267.03	\$97,188.00	3 foundations/approach being widened
43	Remove Existing Pole & Foundation	84	Each	\$1,157.00	\$26,267.03	\$97,188.00	3 poles+foundations/approach being widened
44	Cable	14,000	Linear Foot	\$7.00	\$26,486.49	\$98,000.00	500'/approach being widened, assume NO. 14 3C
45	Conduit	14,000	Linear Foot	\$13.00	\$49,189.19	\$182,000.00	500'/approach being widened, assume 2' conduit
46	Trench & Backfill (lighting)	14,000	Feet	\$19.00	\$71,891.89	\$266,000.00	500'/approach being widened
47	Miscellaneous	8	Each	\$5,000.00	\$10,810.81	\$40,000.00	\$5000/approach being widened
48	Structures to be Adjusted	150	Each	\$1,100.00	\$44,594.59	\$165,000.00	5 per block for 30 blocks
49	Section 4: 129th - 154th Street	3.46	miles		\$218,588.74	\$756,317.03	
50	Overhead Signs	30	Each	\$6,940.00	\$60,173.41	\$208,200.00	
51	Signs	10	Each	\$515.00	\$1,488.44	\$5,150.00	
52	Structures to be Adjusted	180	Each	\$1,100.00	\$57,225.43	\$198,000.00	assume 5 per block - 36 blocks
53	Curb and Gutter Removal	1,250	Feet	\$11.00	\$3,973.99	\$13,750.00	assume 50 ft/ block x 36 blocks
54	Concrete Curb and Gutter Installation	1,250	Feet	\$16.00	\$5,780.35	\$20,000.00	
55	Pavement Marking	73,075	Linear Foot	\$4.00	\$84,480.00	\$292,300.80	Assume 2 skip dash (0.25 length) and 2 solid yellow lines along entire corridor
56	PCC Sidewalk (8")	2,365	Square Feet	\$8.00	\$5,467.12	\$18,916.23	42 stations/11.8 miles of project corridor = 3.56 stations/mile. Assume 192 sqft/station
57				ψυ.υυ			72 Stationer File Times of project contract = 5.50 stationer time. Assume 192 squistation
	Section 5: 79th - 154th Street	9.81	miles	£427.000.00	\$1,796,794.50	\$17,626,554.00	Due long from Helated Ct. Laws Ave /2 blocks), approximately 40001 / 40 miles)
58	Pace Pulse Station	28	Each	\$437,066.00	\$1,247,487.05	\$12,237,848.00	Bus lane from Halsted St - Lowe Ave (3 blocks), approximately 1000' (.19 miles)
59	CTA Station	8	Each	\$125,071.00	\$101,994.70	\$1,000,568.00	Assume a double yellow line along section containing bus lane
60	CTA/PACE Terminal Station	3	Each	\$62,872.00	\$19,226.91	\$188,616.00	Bus lane from Halsted St - Lowe Ave (3 blocks), approximately 1000' (.19 miles)

61	Upgrades to CTA 79th Bus Turnaround	1	Lsum	\$3,861,072.00	\$393,585.32	\$3,861,072.00	
62	Traffic Signal Improvement	10	Each	\$33,845.00	\$34,500.51	\$338,450.00	10 locations to be determined
63	Section 6: 79th Street	1.0	miles			\$225,613.00	
64	Overhead Signs	6	Each	\$6,940.00	\$219,157.89	\$41,640.00	Bus lane from Halsted St - Lowe Ave (3 blocks), approximately 1000' (.19 miles)
65	Pavement Marking	1,980	Linear Foot	\$4.00	\$41,684.21	\$7,920.00	Assume a double yellow line along section containing bus lane
66	Bus Pads (local stops)	880	Square Yard	\$128.00	\$112,640.00	\$112,640.00	11 local stops 80 sq. yd/bus pad
67	Bus Pads	160	Square Yard	\$128.00	\$20,480.00	\$20,480.00	2 stations on 79th. 1 bus pad/station. 80 sq. yd/bus pad
68	PCC Sidewalk (8")	1,136	Square Feet	\$8.00	\$9,088.00	\$9,088.00	3 stations on 79th Assume 192 sqft/station plus 560 SF of sidewalk added at 79th and Perry for bus stopping before entering turnaround
69	Traffic Signal Improvement	1	Intersection	\$33,845.00	\$33,845.00	\$33,845.00	Vincennes Ave
70	Section 7: 95th Street	1.0	miles		\$109,604.58	\$109,604.58	
71	Bus Pads	285	Square Yard	\$128.00	\$36,447.46	\$36,447.46	42 stations/11.8 miles of project corridor = 3.56 stations/mile. 1 bus pad/station. 80 sq. yd/bus pad
72	PCC Sidewalk (8")	683	Square Feet	\$8.00	\$5,467.12	\$5,467.12	42 stations/11.8 miles of project corridor = 3.56 stations/mile. Assume 192 sqft/station
73	Traffic Signal Improvement	2	Intersection	\$33,845.00	\$67,690.00	\$67,690.00	Parnell Ave and Wentworth Ave
	SUBTO	OTAL			\$2,571,060	\$30,364,219	
	PRELIMINARY ENGINEERII	NG 7% OF S	UBTOTAL		\$179,974	\$2,125,495	
	FINAL DESIGN 6	% OF SUBTOTA	AL .		\$154,264	\$1,821,853	
	PROJECT MANAGEMENT	10% OF SU	BTOTAL		\$257,106	\$3,036,422	
	CONSTRUCTION MANAGEM	ENT 9% OF	SUBTOTAL		\$231,395	\$2,732,780	
	INSURANCE AND PERMIT CO	OSTS 2% OF	SUBTOTAL		\$51,421	\$607,284	
	SURVEY COSTS	3% OF SUBTO	ΓAL		\$77,132	\$910,927	
	AGENCY STAFF	5% OF SUBTO	TAL		\$128,553	\$1,518,211	
	CONTINGENCY 3	35% OF SUBTO	ΓAL		\$899,871	\$10,627,477	
	тот	AL			\$4,550,776	\$53,744,667	\$4,550,776

### NOTES AND ASSUMPTIONS

Limit of construction is assumed to span approximately 10 miles from the center of 79th Street to the Center of 154th Street.

The unit price for items in Line Nos. 2-5, 9, 12-14, 18, 20, 23-26, 30, and 40 are based on IDOT bid prices (2015)

The unit price for items in Line Nos. 6-7, 15-16, 27-28 are based on Belmont Ave. NTP - Reference Division 90% Cost Estimate (proj. 3112)

The unit prices for items in Line Nos. 8, 17, 29, 31, 33-36, 48-49 are based on the JBFRT Summary of Quantities (proj. 3106)

Section	Description	Unit	Unit Price	Quantity		Cost	Assumptions
Bus Lane - Parking Lane Reduc	end Overhead Signs	EVCH	\$6,940.00	6	Ф	41,640.00	Bus lane from Halsted St - Lowe Ave (3 blocks), approximately 1000' (.19 miles) overhead structure for the
(79th St)	ded Overnead Signs	LACIT	φ 0,940.00	U	Ψ	41,040.00	three intersections not signalized
(791131)	Pavement Marking	LNFT	\$ 4.00	1,980	\$	7,920.00	Assume a double yellow line along section containing bus lane
					\$	49,560.00	TOTAL COST OF SECTION
						0.19	MILES IN SECTION
					\$	260,842.11	COST OF SECTION PER MILE

Section	Description	Unit	<b>Unit Price</b>	Quantity	Cost	Assumptions
Bus Lane - Travel Lanes Reduced	PCC Sidewalk (8")	SQFT	\$ 8.00	171 \$	1,366.78	42 stations/11.8 miles of project corridor = 3.56 stations/mile. Assume 192 sqft/station
(98th to100th)	Pavement Marking	LNFT	\$ 4.00	5940 \$	23,760.00	Assume 2 skip dash (0.25 length) and 2 solid yellow lines along entire corridor
(98111010011)	Structures to be Adjusted	EACH	\$1,100.00	1 \$	1,100.00	One per mile
				\$	26,226.78	TOTAL COST OF SECTION
					0.2	5 MILES IN SECTION
				\$	104,907.12	COST OF SECTION PER MILE

Section	Description	Unit	<b>Unit Price</b>	Quantity		Cost	Assumptions
	Overhead Signs	EACH	\$6,940.00	44	\$	305,360.00	
	Signs	EACH	\$ 515.00	22	\$	11,330.00	
	Pavement Removal (Median)	SQYD	\$ 20.00	10938	\$	218,755.56	
	Median Removal	SQYD	\$ 51.00	6578	\$	335,495.00	
	Curb and Gutter Removal	FT	\$ 11.00	63930	\$	703,230.00	
	Sidewalk Removal	SQFT	\$ 3.00	30925	\$	92,775.00	
	6" Sub base (Median)	SQYD	\$ 14.00	19783		276,966.67	
	10" PCC (Median)	SQYD	\$ 113.00	19783	\$	2,235,516.67	
	HMA (Median)	TON	\$ 226.00			1,251,889.33	
	Concrete Curb and Gutter Installation	FT	\$ 16.00			1,022,880.00	
	PCC Sidewalk	<b>-</b>	\$ 6.00	30925		185,550.00	
	PCC Sidewalk (8")	SQFT	\$ 8.00	2529		·	42 stations/11.8 miles of project corridor = 3.56 stations/mile. Assume 192 sqft/station
Bus Lane - Parking Lanes	Catch Basin Removal	EACH	\$ 451.00	162	\$		Assume 6 catch basin relocations per intersection widening. 27 intersections widened.
Reduced (100th to 129th)	Storm Sewer Removal	FT	\$ 28.00	6480			Assume 6 catch basin relocations per intersection widening. 27 intersections widened.
	Catch Basin	EACH	\$4,948.00	162			Assume 6 catch basin relocations per intersection widening. 27 intersections widened.
	Storm Sewer	FT	\$ 156.00	6480			Assume 6 catch basin relocations per intersection widening. 27 intersections widened.
	Trench & Backfill (drainage)		\$ 116.00	324	•		Assume 6 catch basin relocations per intersection widening. 27 intersections widened.
	Pavement Marking	LNFT	\$ 4.00	87912		·	Assume 2 skip dash (0.25 length) and 2 solid yellow lines along entire corridor and 2 solid white lines
	Pole Relocation		\$ 1,157.00	84			3 poles/approach being widened
	Foundations		\$ 1,157.00	84			3 foundations/approach being widened
	Remove Existing Pole & Foundation		\$ 1,157.00	84			3 poles+foundations/approach being widened
	Cable	LNFT	\$ 7.00	14000			500'/approach being widened, assume NO. 14 3C
	Conduit	LNFT	\$ 13.00	14000			500'/approach being widened, assume 2' conduit
	Trench & Backfill (lighting)	FT	\$ 19.00	14000			500'/approach being widened
	Miscellaneous	EACH	\$5,000.00	8	\$	40,000.00	\$5000/approach being widened
	Structures to be Adjusted	EACH	\$1,100.00	150	\$	165,000.00	5 per block for 30 blocks
_		_			\$ 1	0,158,730.56	TOTAL COST OF SECTION
							MILES IN SECTION
					\$	2,745,602.85	COST OF SECTION PER MILE

Description Section Unit Unit Price Quantity Cost Assumptions Overhead Signs 208,200.00 EACH \$6,940.00 30 \$ Signs 5,150.00 EACH \$ 515.00 10 \$ Bus Lane - Travel Lanes Reduced

(120th to 154th)

Structures to be Adjusted
Curb and Gutter Removal EACH \$1,100.00 180 \$ 198,000.00 Assume 5/block - 36 blocks FT \$ 11.00 1250 \$ 13,750.00 Assume 50 ft/block x 36 blocks (129th to 154th) Concrete Curb and Gutter Installation FT \$ 16.00 1250 \$ 20,000.00 Pavement Marking LNFT \$ 4.00 73075 \$ 292,300.80 Assume 2 skip dash (0.25 length) and 2 solid yellow lines along entire corridor

PCC Sidewalk (8")	SQFT \$	8.00	2365 \$	18,916.23 42 stations/11.8 miles of project corridor = 3.56 stations/mile. Assume 192 sqft/station
			\$	756,317.03 TOTAL COST OF SECTION
				3.46 MILES IN SECTION
			\$	218,588.74 COST OF SECTION PER MILE

Section	Description	Unit	Unit Price	Quantity	Cost		Assumptions
Colorized Pavement Installation	Colorized Pavement Marking	SQ FT	\$ 7.00	10560 \$	73,920.00	5280 ft/mile. 2 feet wide	
Colonzed Pavement Installation	Colorized HMA Pavement Installation	TON	\$ 173.00	1971 \$	341,017.60	5280 ft/mile. 2.5" depth, 12 foot travel lane	
				\$	414,937.60	PER MILE	
				Ψ	111,001100		
				*	111,001100		
Section	Description	Unit	Unit Price	Quantity	Cost		Assumptions
	<b>Description</b> Colorized Pavement Marking	Unit SQ FT			Cost	5280 ft/mile. 2 feet wide	Assumptions
Section  HMA Pavement Installation	•				Cost 73,920.00		Assumptions

ITEM	COST	YEAR	ESCALATION YEAR	YEARLY ESCALATION	ESCALATION YEAR COST	SOURCE	REMARK
Signs	\$ 445.00	2016	2023	2.10%	\$ 515.00	2016 Grand Ave Project	
Pavement Removal (Median)	\$ 18.00	2017	2023	2.03%	\$ 20.00	60X95	
Median Removal	\$ 45.00	2017	2023	2.03%	\$ 51.00	61E14	
Planter Median Removal	\$ 67.00	2017	2023	2.03%	\$ 76.00	\$45+\$22 (1/3)earth excavation (\$67/ cy 60X95)	
Curb and Gutter Removal	\$ 10.00	2017	2023	2.03%		60X95	
Sidewalk Removal	\$ 2.25	2017	2023	2.03%	\$ 3.00	60X95	
6" Sub base (Median)	\$ 12.00	2017	2023	2.03%	\$ 14.00	74664	
10" PCC (Median)	\$ 100.00	2017	2023	2.03%	\$ 113.00	78392	
HMA (Median)	\$ 200.55	2017	2023	2.03%	\$ 226.00	74664 SC/ 61e14	Levelling binder 2.5" surface 2.5" + 5% prime coat
Concrete Curb and Gutter Installation	\$ 14.00	2017	2023	2.03%		61D16	
PCC Sidewalk	\$ 5.50	2017	2023	2.03%	<u> </u>	60V57	
Bus Pads (local stops)	\$ 110.40	2016	2023	2.10%	\$ 128.00	2016 Grand Ave Project (80 HECC)+12 subbase +20% for dowel bars	
PCC Sidewalk (8")	\$ 7.00	2016	2023	2.10%		61E07	
Catch Basin Removal	\$ 400.00	2017	2023	2.03%	\$ 451.00		
Storm Sewer Removal	\$ 25.24	2017	2023		•	68084	
Catch Basin	\$ 4,278.00	2016	2023	2.10%	\$ 4,948.00	2016 Grand Ave Project	
Storm Sewer	\$ 135.00	2016	2023	2.10%	\$ 156.00	2017 Grand Ave Project	
Trench & Backfill (drainage)	\$ 100.00	2016	2023		•	87680	
Pavement Marking	\$ 3.50	2017	2023	2.03%		46471	
Traffic Signal Improvement	\$ 30,000.00	2017	2023	2.03%		Past DEO projects	
Pole Relocation	\$ 1,000.00	2016	2023	2.10%		DEO	
Foundations	\$ 1,000.00	2016	2023	2.10%	\$ 1,157.00		
Remove Existing Pole & Foundation	\$ 1,000.00	2016	2023			DEO	
Cable	\$ 6.21	2016	2023			DEO	
Conduit	\$ 11.38	2016	2023	2.10%		DEO	
Trench & Backfill (lighting)	\$ 16.38	2016	2023	2.10%	\$ 19.00	DEO	
Miscellaneous	\$ 5,000.00				\$ 5,000.00		
Structures to be Adjusted	\$ 975.00	2017	2023	2.03%	• •	60X95	
Pace Pulse Station	\$ 393,929.00	2018	2023	2.10%	\$ 437,066.00		
CTA Station	\$ 112,727.00	2018	2023		\$ 125,071.00		
CTA/PACE Terminal Station	\$ 56,667.00	2018	2023		\$ 62,872.00		
Upgrades to CTA 79th Bus Turnaround	\$ 3,480,000.00	2018	2023		\$ 3,861,072.00		
Bus Pads	\$ 110.40	2016	2023		\$ 128.00		
Detectable Tile	\$ 50.00	2016	2023	2.10%	\$ 58.00		
Overhead Signs	\$ 6,000.00	2016	2023	2.10%	\$ 6,940.00		
Colorized Pavement Marking	\$ 6.00	2016	2023	2.10%	\$ 7.00		
Colorized HMA Pavement Installation	\$ 150.00	2016	2023	2.10%	\$ 173.00		
HMA Pavement Installation	\$ 100.00	2016	2023	2.10%	\$ 116.00		

Pavement Resurfacing

					South Halste	d Bus Corridor Enhancen	nent Project							
Category	Line No.	Cost Category	Street	From	То	Width of Roadway(ft)	Length(ft)	Quan.	Units	Unit Cost	Cost/ mile	Total Cost	Remarks	Source
		HMA Surface Removal (2.25")	Halsted Street	79th	83rd	49	2260	12304	Square Yard	\$ 2.50		\$ 30,761.11		APIR09222017 IDOt bid tab
		HMA Surface Removal (2.25")	Halsted Street	83rd	98th	56	10000	62222	Square Yard	\$ 2.50		\$ 155,555.56		APIR09222017 IDOt bid tab
		HMA Surface Removal (2.25")	Halsted Street	98th	100th	77	1305	11165	Square Yard	\$ 2.50		\$ 27,912.50		APIR09222017 IDOt bid tab
		HMA Surface Removal (2.25")	Halsted Street	100th	129th PL	54	19655	117930	Square Yard	\$ 2.50		\$ 294,825.00		APIR09222017 IDOt bid tab
		HMA Surface Removal (2.25")	Halsted Street	129th PI	145th	48	9800	52267	Square Yard	\$ 2.50		\$ 130,666.67		APIR09222017 IDOt bid tab
		HMA Surface Removal (2.25")	Halsted Street	145th	147th	56	3300	20533	Square Yard	\$ 2.50		\$ 51,333.33		APIR09222017 IDOt bid tab
		HMA Surface Removal (2.25")	Halsted Street	147th	149th	61	1330	9014	Square Yard	\$ 2.50		\$ 22,536.11		APIR09222017 IDOt bid tab
		HMA Surface Removal (2.25")	Halsted Street	149th	154th	48	3850	20533	Square Yard	\$ 2.50		\$ 51,333.33		APIR09222017 IDOt bid tab
		Leveling Binder (0.75")	Halsted Street	79th	154th			12851	Ton	\$ 100.00		\$ 1,285,071.67		APIR09222017 IDOt bid tab
		HMA Surface (1.5")	Halsted Street	79th	154th			25701	Ton	\$ 125.00		\$ 3,212,679.17		APIR09222017 IDOt bid tab
		HMA Surface Removal (2.25")	79th Street	Halsted Street	Wabash Avenue			30358	Square Yard	\$ 2.50		\$ 75,895.83		APIR09222017 IDOt bid tab
		HMA Surface Removal (2.25")	95th Street	Halsted Street	State Street			39368	Square Yard	\$ 2.50		\$ 98,420.28		APIR09222017 IDOt bid tab
		Leveling Binder (0.75")	79th Street	Halsted Street	Wabash Avenue			1275	Ton	\$ 100.00		\$ 127,505.00		APIR09222017 IDOt bid tab
		HMA Surface (1.5")	95th Street	Halsted Street	State Street			3307	Ton	\$ 125.00		\$ 413,365.17		APIR09222017 IDOt bid tab

total \$5,977,860.72

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125 126 125th to 126th 665 385 126 127 126th to 127th 665 575 127 Vermont 127th to Vermont 440 305 128 129 128th to 129th 710 440 128 129 128th to 129th 710 440 129 130 129th to 130th ↓ ↓ 130 131 130th to 131st ↓ ↓ ↓ 131 132 131st to 132nd ↓ ↓ ↓ 132 133 132nd to 133th ↓ ↓ ↓ 133 134 135th to 136th ↓ ↓ ↓ 134 135 134th to 136th ↓ ↓ ↓ 135 136th to 136th ↓ ↓ ↓ 136 137 136th to 137th ↓ ↓ ↓ 137 138 137th to 138th ↓ ↓ ↓ 137 138 137th to 138th ↓ ↓ ↓					
127 Vermont 127th to Vermont 440 305  Vermont 128 Vermont to 128th 570 410  128 129 128th to 129th 710 440  129 130 129th to 130th					
Vermont         128         Vermont to 128th         570         410           128         129 128th to 129th         710         440           129         130         129th to 130th         ↓         ↓           130         131 130th to 131st         ↓         ↓         ↓           131         132 131st to 132nd         ↓         ↓         ↓           132         133 132nd to 133th         ↓         ↓         ↓           133         134 133th to 132th         2440         595           134         135 134th to 135th         ↓         ↓         ↓           135         136 135th to 136th         ↓         ↓         ↓           136         137 136th to 137th         ↓         ↓         ↓           137         138 137th to 138th         2670         2560           138         139 138th to 139th         ↓         ↓         ↓		127	126th to 127th	665	575
128     129     128th to 129th     710     440       129     130     129th to 130th     ↓     ↓       130     131     130th to 131st     ↓     ↓       131     132     131st to 132nd     ↓     ↓       132     133     134 of 133th     ↓     ↓       133     134     133th to 134th     2440     595       134     135     134th to 135th     ↓     ↓       135     136 tho 135th to 136th     ↓     ↓     ↓       136     137     136th to 137th     ↓     ↓       137     138     139     138th to 139th     ↓     ↓     ↓					305
129 130 129th to 130th ↓ ↓ ↓ 130 131 130th to 131st ↓ ↓ ↓ 131 132 131st to 132nd ↓ ↓ ↓ 132 133 132nd to 133th ↓ ↓ ↓ 133 132nd to 133th ↓ ↓ ↓ 133 134h 135h to 134th 2440 595 134 135 136th to 135th ↓ ↓ ↓ 135 136th to 136th ↓ ↓ ↓ 136 137 136th to 137th ↓ ↓ 137 138 137th to 138th 2670 2560 138 139 138th to 139th ↓ ↓ ↓					
130 131 130th to 131st ↓ ↓ ↓ ↓ 131 132 131st to 132nd ↓ ↓ ↓ 132 133 132nd to 133th ↓ ↓ ↓ 133 134h 133th to 134th 2440 595 134 135 134th to 135th ↓ ↓ ↓ 135 136th to 135th ↓ ↓ ↓ 136 137 136th to 137th ↓ ↓ 137 138 137th to 138th 2670 2560 138 139 138th to 139th ↓ ↓ ↓					
131 132 131st to 132nd ↓ ↓ ↓ 132 133 132nd to 133th ↓ ↓ ↓ 133 132nd to 133th ↓ ↓ ↓ 133 134 133th to 134th 2440 595 134 135 134th to 135th ↓ ↓ ↓ 135 136 135th to 136th ↓ ↓ ↓ 136 137 136th to 137th ↓ ↓ ↓ 137 138 137th to 138th 2670 2560 138 139 138th to 139th ↓ ↓ ↓				•	•
132 133 132nd to 133th ↓ ↓ ↓ 133 132nd to 133th ↓ ↓ ↓ 133 134 133th to 134th 2440 595 134 135 134th to 135th ↓ ↓ ↓ 135 136 135th to 136th ↓ ↓ ↓ 136 137 136th to 137th ↓ ↓ 137 138 137th to 138th 2670 2560 138 139 138th to 139th ↓ ↓ ↓					
133 134 133th to 134th 2440 595 134 135 134th to 135th ↓ ↓ 135 136 135th to 136th ↓ ↓ 136 137 136th to 137th ↓ ↓ 137 138 137th to 138th 2670 2560 138 139 138th to 139th ↓ ↓					
134 135 134th to 135th ↓ ↓ ↓ 135 136 135th to 136th ↓ ↓ ↓ 136 137 136th to 137th ↓ ↓ 137 138 137th to 138th 2670 2560 138 139 138th to 139th ↓ ↓					
135 136 135th to 136th ↓ ↓ ↓ 136 137 136th to 137th ↓ ↓ ↓ 137 138 137th to 138th					
136 137 136th to 137th ↓ ↓ ↓ 137 138 137th to 138th 2670 2560 138 139 138th to 139th ↓ ↓					
137 138 137th to 138th 2670 2560 138 139 138th to 139th ↓ ↓					
138 139 138th to 139th ↓ ↓					
		139			
	139	140			

		79th		
Start	End	Block	Block Length (ft)	Median Length (ft)
Halsted	Emerald	Halsted to Emerald	330	0
Emerald	Union	Emerald to Union	330	0
Union	Lowe	Union to Lowe	330	0
Lowe	Wallace	Lowe to Wallace	170	0
Wallace	Fielding	Wallace to Fielding	280	0
Fielding	Parnell	Fielding to Parnell	215	0
Parnell	Normal	Parnell to Normal	330	0
Normal	Eggleston	Normal to Eggleston	330	0
Eggleston	Vincennes	Eggleston to Vincennes	350	0
Vincennes	Harvard	Vincennes to Harvard	310	0
Harvard	Princeton	Harvard to Princeton	330	0
Princeton	Driveway	Princton to CTA Driveway	215	0
CTA Driveway	Yale	CTA Driveway to Yale	115	0
Yale	Wentworth	Yale to Wentworth	330	0
Wenworth	Lasalle	Wentworth to Lasalle	325	0
Lasalle	Perry	Lasalle to Perry	330	0
Perry	Lafayette	Perry to Lafayette	330	0
Lafayette	State	Lafayette to State	330	0
•		TOTAL (feet)	5280	0
		TOTAL (miles)	1.00	0.00

	95th Median Length														
Start	End	Block	Block Length (ft)	Median Length (ft)											
Halsted	Emerald	Halsted to Emerald	330	0											
Emerald	Union	Emerald to Union	330	265											
Union	Lowe	Union to Lowe	330	265											
Lowe	Wallace	Lowe to Wallace	330	210											
Wallace	Parnell	Wallace to Parnell	330	265											
Parnell	Normal	Parnell to Normal	330	265											
Normal	Eggleston	Normal to Eggleston	330	265											
Eggleston	Harvard	Eggleston to Harvard	645	490											
Harvard	Princeton	Harvard to Princeton	330	220											
Princeton	Yale	Princeton to Yale	330	265											
Yale	Wentworth	Yale to Wentworth	330	210											
Wentworth	Lasalle	Wentworth to Lasalle	330	210											
Lasalle	Perry	Lasalle to Perry	330	265											
Perry	Lafayette	Perry to Lafayette	330	0											
Lafayette	State	Lafayette to State	330	255											
		TOTAL (feet)	5265	3450											
		TOTAL (miles)	1.00	0.65											

TOTAL PROJECT LENGTH (feet)	62445
TOTAL PROJECT LENGTH (miles)	11.83

medians (feet) 32880 medians (miles) 6.23

10000

140	141	140th to 141st	4	<b>V</b>
141	142	141st to 142nd	2710	2590
142	143	142nd to 143th	660	575
143	144	143th to 144th	660	580
144	145	144th to 145th	660	380
145	146	145th to 146th	2640	0
146	147	146th to 147th	660	480
147	148	147th to 148th	660	575
148	149	148th to 149th	670	0
149	150	149th to 150th	760	0
150	151	150th to 151st	800	0
151	152	151st to 152nd	980	0
152	153	152nd to 153th	980	0
153	154	153th to 154th	330	0
		TOTAL (feet)	51900	29430
		TOTAL (miles)	9.83	5.57

			Halsted									ALTE	RNATIVE 1	<u> </u>							
	Start	End	Block	Block Length (ft)	Median Length (ft)	WIDENING		Concrete Median Length (ft)	Description	Width of median removed (ft)	Area of planter median removed	Area of median removed	Widening	Area being widened	Area of sub base installed	Area of pavement removed	Length of curb and gutter removed	Area of sidewalk removed	Description	Width of median removed (ft)	Area of planter median removed
	79		79th to 80th	665	0							0		0							
	80		80th to 81st	665	0							0		0							
	81		81st to 82nd	665	0							0		0							
	82		82nd to 83rd	665	0							0		0							
	83		83rd to 84th	665	0	ļ						0		0							
	84		84th to 85th	665	0	ł						0		0							
	85 \ Vincennes		85th to Vincennes Vincennes to 87th	875	285				Name Mad 41	4		0		0	4440		F70		Name v Mad O	4	
	87		87th to 88th	450 640	365	4		189	Narrow Med.4' Narrow Med. 2'	4 2		1140 378		0	1140 378		570 378		Narrow Med. 2' Narrow Med. 2'	4 2	
Σ	88		88th to 89th	640	420			109	Narrow Med. 2	2		0		0	310		3/0		Narrow Med. 2	2	
nent	89		89th to 90th	640	490							0		0							
Segm	90		90th to 91st	740	320							O		O							
ŭ	91		91st to 92nd	680	420																
	92		92nd to 93rd	680	490							0		0							
	93		93rd to 94th	680	390							0		0							
	94		94th to 95th	625	325	4															
	95		95th to 96th	715	144	•		144	Narrow Med. 3'	3		432		0	432		288		Narrow Med. 3'	3	
	96	97	96th to 97th	655	685	1						0		0							
	97	98 St	97th to 98th St	650	330	1						0		0							
	•		TOTAL (feet)	12660	4664				SQFT		0	1950		0	1950	0	1236	0	SQFT		0
			TOTAL (miles)	2.40	0.88				SQYD		0	217			217	0	137	0	SQYD		0
	98 St	98 PI	98th St to 98th PI	310	145						0	0		0							0
nt 2	98 PI	99	98th PI to 99th	330	0						0	0		0							0
me	99	100	99th to 100th	665	585						0	0		0	0						0
Segment			TOTAL (feet)	1305	730				SQFT		0	0		0	0	0	0	0	SQFT		0
			TOTAL (miles)	0.25	0.14				SQYD		0	0			0	0	0	0	SQYD		0
	100	101	100th to 101st	660	580			230	Narrow Med. *	3	0	690		0	690	460	460		Narrow Med. *	3	0
	101	102	101st to 102nd	660	585	1					0	0		0	0	0	0	1			0
	102	103	102nd to 103rd	660	590	1		200	Narrow Med. *	3	0	600		0	600	400	400	!	Narrow Med. *	3	0
	103	104	103rd to 104th	660	525	149			Widen 2'		0	0	2	298	596	298	149	298	Widen 2'		0
	104		104th to 105th	660	455						0	0		0		0				1	0
	105		105th to 106th	660	455	4					0	0		0		0				·	
	106		106th to 107th	660	515	•	100	186	Narrow Med. 4'	4	200	744		0	744	572	372		Narrow Med. 4'	4	0
	107		107th to 108th			4				4				-						4	200 150
				660	595		75	223	Narrow Med. 4'	4	150	892		0	892	596	446		Narrow Med. 4'	4	150
	108		108th to 109th	660	400	•					0	0		0		0				,	0
	109		109th to 110th	660	595						0	0		0		0					0
	110	111	110th to 111th	660	505	]	30	200	Narrow Med. 4'	4	120	400		0	920	460	460		Narrow Med. 4'	4	120
	111	112	111th to 112th	660	525	130	38	206	Narrow Med. 4', widen 1'	4	152	824	1	660	1702	748	748	130	Narrow Med. 4', widen 1'	4	152 0
	112	113	112th to 113th	660	410						0	0		0	0	0	0	0		'	0
	113	114	113th to 114th	660	480						0	0		0	0	0	0	0		1	0
t 3	114		114th to 115th	660	600	4			widen 3', narrow sidewalk 3'	3	0	0	3	1980	740	296	296	444	Narrow Med. 3'	3	0 0 0 0
neu	115		115th to 116th	540	325			131	· ·	3	0	393		0	655	262	262	0	Narrow Med. 3'	3	0
Segm	116		116th to 117th	645	560			131	INGITOW MICU. J	,	0	0		0	000	0	0	0	Nanow Med. 3	,	0
Ŋ						•								_						,	0
	117		117th to 118th	800	540	1				_	0	0		0	0	0	0	0		ı	0 99 0
	118		118th to 119th	665	515		66	200		3	99	600		0	1132	532	532	0		_ ,	99
	119		119th to 120th	660	595			366		4	0	1464		0	2196	732	732	0	Narrow Med. 3'		
	120 F	RR Tracks	120th to RR Tracks	660	610	j		312	Narrow Med. 4'	4	0	1248		0	1872	624	624	0	Narrow Med. 4'	4	0

			Halsted									ALTE	RNATIVE 1	<u> </u>							
	Start	End	Block	Block Length (ft)	Median Length (ft)	WIDENING		Concrete Median Length (ft)	Description	Width of median removed (ft)	Area of planter median removed	Area of median removed	Widening	Area being widened	Area of sub base installed	Area of pavement removed	Length of curb and gutter removed	Area of sidewalk removed	Description	Width of median removed (ft)	Area of planter median removed
	79		79th to 80th	665	0							0		0							
	80		80th to 81st	665	0							0		0							
	81		81st to 82nd	665	0							0		0							
	82		82nd to 83rd	665	0							0		0							
	83		83rd to 84th	665	0	ļ						0		0							
	84		84th to 85th	665	0	ł						0		0							
	85 \ Vincennes		85th to Vincennes Vincennes to 87th	875	285				Name Mad 41	4		0		0	4440		F70		Name v Mad O	4	
	87		87th to 88th	450 640	365	4		189	Narrow Med.4' Narrow Med. 2'	4 2		1140 378		0	1140 378		570 378		Narrow Med. 2' Narrow Med. 2'	4 2	
Σ	88		88th to 89th	640	420			109	Narrow Med. 2	2		0		0	310		3/0		Narrow Med. 2	2	
nent	89		89th to 90th	640	490							0		0							
Segm	90		90th to 91st	740	320							O		O							
ŭ	91		91st to 92nd	680	420																
	92		92nd to 93rd	680	490							0		0							
	93		93rd to 94th	680	390							0		0							
	94		94th to 95th	625	325	4															
	95		95th to 96th	715	144	•		144	Narrow Med. 3'	3		432		0	432		288		Narrow Med. 3'	3	
	96	97	96th to 97th	655	685	1						0		0							
	97	98 St	97th to 98th St	650	330	1						0		0							
	•		TOTAL (feet)	12660	4664				SQFT		0	1950		0	1950	0	1236	0	SQFT		0
			TOTAL (miles)	2.40	0.88				SQYD		0	217			217	0	137	0	SQYD		0
	98 St	98 PI	98th St to 98th Pl	310	145						0	0		0							0
nt 2	98 PI	99	98th PI to 99th	330	0						0	0		0							0
me	99	100	99th to 100th	665	585						0	0		0	0						0
Segment			TOTAL (feet)	1305	730				SQFT		0	0		0	0	0	0	0	SQFT		0
			TOTAL (miles)	0.25	0.14				SQYD		0	0			0	0	0	0	SQYD		0
	100	101	100th to 101st	660	580			230	Narrow Med. *	3	0	690		0	690	460	460		Narrow Med. *	3	0
	101	102	101st to 102nd	660	585	1					0	0		0	0	0	0	1			0
	102	103	102nd to 103rd	660	590	1		200	Narrow Med. *	3	0	600		0	600	400	400	!	Narrow Med. *	3	0
	103	104	103rd to 104th	660	525	149			Widen 2'		0	0	2	298	596	298	149	298	Widen 2'		0
	104		104th to 105th	660	455						0	0		0		0				1	0
	105		105th to 106th	660	455	4					0	0		0		0				·	
	106		106th to 107th	660	515	•	100	186	Narrow Med. 4'	4	200	744		0	744	572	372		Narrow Med. 4'	4	0
	107		107th to 108th			4				4				-						4	200 150
				660	595		75	223	Narrow Med. 4'	4	150	892		0	892	596	446		Narrow Med. 4'	4	150
	108		108th to 109th	660	400	•					0	0		0		0				,	0
	109		109th to 110th	660	595						0	0		0		0					0
	110	111	110th to 111th	660	505	]	30	200	Narrow Med. 4'	4	120	400		0	920	460	460		Narrow Med. 4'	4	120
	111	112	111th to 112th	660	525	130	38	206	Narrow Med. 4', widen 1'	4	152	824	1	660	1702	748	748	130	Narrow Med. 4', widen 1'	4	152 0
	112	113	112th to 113th	660	410						0	0		0	0	0	0	0		'	0
	113	114	113th to 114th	660	480						0	0		0	0	0	0	0		1	0
t 3	114		114th to 115th	660	600	4			widen 3', narrow sidewalk 3'	3	0	0	3	1980	740	296	296	444	Narrow Med. 3'	3	0 0 0 0
neu	115		115th to 116th	540	325			131	· ·	3	0	393		0	655	262	262	0	Narrow Med. 3'	3	0
Segm	116		116th to 117th	645	560			131	INGITOW MICU. J	,	0	0		0	000	0	0	0	Nanow Med. 3	,	0
Ŋ						•								_						,	0
	117		117th to 118th	800	540	1				_	0	0		0	0	0	0	0		ı	0 99 0
	118		118th to 119th	665	515		66	200		3	99	600		0	1132	532	532	0		_ ,	99
	119		119th to 120th	660	595			366		4	0	1464		0	2196	732	732	0	Narrow Med. 3'		
	120 F	RR Tracks	120th to RR Tracks	660	610	j		312	Narrow Med. 4'	4	0	1248		0	1872	624	624	0	Narrow Med. 4'	4	0

	RR Tracks	122 RR Tracks to 122nd	660	600	1			Ì	0	0	1	0	<b>l</b> o	0	0	0			0
	122	123 122nd to 123rd	660	580	150	200	Narrow Med. 3'	3	450	600		0	1300	700	700	0	Narrow Med. 3'	3	450
	123	124 123rd to 124th	660	585	100	201		3	0	603		0	1005	402	402	0	Narrow Med. 3'	3	0
	124	125 124th to 125th	660	520		201	Ivanow wed. 5	3	0	0		0	0	0	0	0	Ivanow Wed. 3	3	0
	125	126 125th to 126th	660	385			Narrow Med. 5', widen 3'	5	0	0	3	1980	0	0	0	0	Narrow Med. 5', widen 3'	5	0
	126	127 126th to 127th	660	575		214	·	2	0	428	Ĭ	0	856	428	428	0	Narrow Med. 2'	2	0
	127	Vermont 127th to Vermont	440	305		305		3	0	915	3	1320	1525	610	610	0	Narrow Med. 3', widen 3'	3	0
		128 Vermont to 128th	570	410	100	200		3	300	600	٦	0		600		0	Narrow Med. 3'	3	300
	Vermont 128	129 128th to 129th	710	440		200	Narrow Med. 5	3		0		-	1200	0	600 0		Narrow Med. 5	3	0
	120						COLL		0			0	0			0	COFT		
		TOTAL (feet) TOTAL (miles)	19550 3.70	15360 2.91			SQFT SQYD		1471 163	11001 1222		6238	18625 2069	8720 969	8221 913	872 97	SQFT SQYD		1471 163
	129	130 129th to 130th	3.70	2.91			3415		103	1222			2009	303	913	31	3010		100
	130	131 130th to 131st	1	<u> </u>															
	131	132 131st to 132nd	1	· ·															
	132	133 132nd to 133th		<u>+</u>															
	133	134 133th to 134th	2440	595															
	134	135 134th to 135th	1	1															
	135	136 135th to 136th	j	Ţ															
	136	137 136th to 137th	<u> </u>	<b>→</b>															
	137	138 137th to 138th	2670	2560															
	138	139 138th to 139th	$\downarrow$	$\downarrow$															
	139	140 139th to 140th	$\downarrow$	$\downarrow$															
	140	141 140th to 141st	$\downarrow$	$\downarrow$															
int 4	141	142 141st to 142nd	2710	2590															
ᇤ	142	143 142nd to 143th	660	575															
Segm	143	144 143th to 144th	660	580															
	144	145 144th to 145th	660	380															
	145	146 145th to 146th	2640	0															
	146	147 146th to 147th	660	480															
	147	148 147th to 148th	660	575															
	148	149 148th to 149th	660	0															
	149	150 149th to 150th	760	0															
	150	151 150th to 151st	800	0															
	151	152 151st to 152nd	980	0															
	152	153 152nd to 153th	980	0															
	153	154 153th to 154th	330	0									_						
		TOTAL (feet)	18270	8335			SQFT		0	0		0	0	0	0	0	SQFT		0
		TOTAL (miles)	3.46	1.58			SQYD		0	0			0	0	0	0	SQYD		0

<sup>\*</sup> Alternative 1 proposal for segment 4 consists of just pavement markings for the length of the segment
\*\* Alternatives 2 and 3 propose new bus lanes for segment 4 and will require complete roadway reconstruction for the length of the segment.

Marco   Modern   Mo	ALT	ERNATIVE 2								ALTERNA	ATIVE 3					
Description	median	Widening	_		pavement	curb and gutter	sidewalk	Description	median	median	Widening	_		pavement	curb and gutter	sidewalk
0	0		0							0		0				
Namow Med. 2'												-				
1/20	-		-									-				
Name   New	-		•							_		0				
1140	ŭ		•							•		0				
Narrow Med. 2	Ğ		•									0				
Column   C	1140		•	1140		570		Narrow Med. 2'	4			0	1140		570	
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	378		0	378		378		Narrow Med. 2'	2	378		0	378		378	
Narrow Med. 3'   3   432   0   432   288   Narrow Med. 3'   3   432   0   432   288	0		0							0		0				
A   A   A   A   A   A   A   A   A   A	0		0							0		0				
Ag2	0		0							0		0				
0 0 0 0 1950 0 1236 0 217 0 137 0 217 0 217 0 137 0 217 0 137 0 217 0 217 0 137 0 217 0 217 0 137 0 21	0		0							0		0				
0 0 0 0 1950 0 1236 0 217 0 137 0 217 0 217 0 137 0 217 0 137 0 217 0 217 0 137 0 217 0 217 0 137 0 21	432		0	432		288		Narrow Med. 3'	3	432		0	432		288	
1950   D   1950   D   1238   D   1238   D   217   D   137   D   137   D   SQYD   D   D   D   D   D   D   D   D   D			0													
SQYD	0		0							0		0				
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			0		0		0					0		0		0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	217			217	0	137	0	SQYD		217			217	0	137	0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0																
SQFT   0													0			
SQYD   O   O   O   O   O   O   O   O   O					0	0	0	SOLI						0	0	0
Narrow med. **, widen 2*   3   1740   2   1320   6700   3640   2480   1320			U	1								U				
Narrow med. \(^1\), widen 1'	690	0	0	690	460				3		2	1320	6700			1320
0         2         298         596         298         149         298           0 <td< td=""><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td></td><td>0</td><td>Narrow med. *, widen 1'</td><td></td><td>0</td><td></td><td>660</td><td>4320</td><td>3660</td><td></td><td>660</td></td<>	0	0	0	0	0		0	Narrow med. *, widen 1'		0		660	4320	3660		660
0         0	600	0	0	600	400	400	0	Narrow med. *, widen 1'	3	1770	1	660	6110	3680	2500	660
0         0         0         0         0         0         0         Narrow med. 2, widen intersection 2'         2         910         2         1320         5370         3140         2230         1320           744         0         0         744         572         372         0         Narrow med. *, widen 2/3.5'         3         1545         2         1320         6245         3380         2350         1320           892         0         20         0         0         0         20         0         0         0         20         0	0	2	298	596	298	149	298							1320		
744         0         0         744         572         372         0           892         0         0         892         596         446         0           0	0	0	0	0	0	0	0	Narrow med. *, widen intersection 1'	3	1365	1	660	5165	3140	2230	660
892         0         0         892         596         446         0         Narrow med. *, widen 2'         3         1785         3700         1190           0         0         0         0         0         0         0         0         0         0         0         0         1785         3700         1190         320         1200         2         1320         5440         2920         2120         1320         1320         1320         5440         2920         2120         1320         1320         1320         1320         6805         3700         2510         1320         1320         1320         6805         3700         2510         1320         1320         1320         6805         3700         2510         1320         1320         1320         6605         3700         2510         1320         1320         1515         2         1320         6605         3700         2510         1320         1320         1320         1320         6605         3700         2510         1320         1320         1320         1320         6315         3420         2370         1320         1320         1320         1320         1320         1320 <t< td=""><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>Narrow med. 2', widen intersection 2'</td><td>2</td><td>910</td><td>2</td><td>1320</td><td>5370</td><td>3140</td><td>2230</td><td>1320</td></t<>	0	0	0	0	0	0	0	Narrow med. 2', widen intersection 2'	2	910	2	1320	5370	3140	2230	1320
0         0	744	0	0	744	572	372	0	Narrow med. *, widen 2'/3.5'	3	1545	2	1320	6245	3380	2350	1320
0         0         0         0         0         0         0         Narrow med. *, widen 2'         3         1785         2         1320         6805         3700         2510         1320           400         0         0         920         460         460         0         0         0         0         1515         2         1320         6805         3700         2510         1320           824         1         660         1702         748         748         130         Narrow med. *, widen 2/3'         3         1515         2         1320         6315         3420         2370         1320           0         0         0         0         0         0         0         0         0         0         0         0         2         1320         8315         2         1320         6315         3420         2370         1320           Narrow med. *, widen 2/2.5'         3         1530         2         1320         6315         3420         2370         1320           Narrow med. *, widen 2/2.5'         3         1230         2         1320         600         3240         2280         2140         3220 <tr< td=""><td>892</td><td>0</td><td>0</td><td>892</td><td>596</td><td>446</td><td>0</td><td>Narrow med. *</td><td>3</td><td>1785</td><td></td><td></td><td>1785</td><td>3700</td><td>1190</td><td></td></tr<>	892	0	0	892	596	446	0	Narrow med. *	3	1785			1785	3700	1190	
400         0         920         460         460         0           824         1         660         1702         748         748         130           0	0	0	0	0	0	0	0	Narrow med. *, widen 2'	3	1200	2	1320	5440	2920	2120	1320
400         0         920         460         460         0           824         1         660         1702         748         748         130           0	0	0	0	0	0	0	0	Narrow med. *, widen 2'	3	1785	2	1320	6805	3700	2510	1320
824         1         660         1702         748         748         130         Narrow med. *, widen 2.5'         3         1575         2         1320         6315         3420         2370         1320           0         0         0         0         0         0         0         0         0         0         0         0         1320         5510         2960         2140         1320           0         0         0         0         0         0         0         0         0         0         0         0         0         2         1320         5510         2960         2140         1320           0         3         1980         740         296         296         444         Add         444         1440         2         1320         600         3240         2280         1320           Narrow med. *, widen intersection 1.5'         3         1800         2         1320         6840         3720         2520         1320           Remove med. *, widen intersection 2'         5         1625         2         1080         5085         2380         1730         1080           Narrow med. *, widen intersection 1.5/3	400	0	0	920	460	460	0	Narrow med. *, widen 2'/3'	3	1515	2	1320	6175	3340	2330	1320
0         0		1	660				130									
0         0         0         0         0         0         0         Narrow med. *, widen 2'/1'         3         1440         2         1320         6000         3240         2280         1320           0         3         1980         740         296         296         444         Narrow med. *, widen intersection 1.5'         3         1800         2         1320         6840         3720         2520         1320           393         0         0         655         262         262         0         Remove med., widen intersection 2'         5         1625         2         1080         5085         2380         1730         1080           Narrow med. 5', widen intersection 1'         5         2800         1         645         6975         3530         2410         645           Narrow med. 5', widen intersection 1.5/3         3         1620         2         1600         6980         3760         2680         1600           Narrow med. 5', widen intersection 1.5/2         3         1545         2         1330         6265         3390         2360         1330           1464         0         0         2196         732         732         0         732 <td></td> <td>0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1230</td> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td>		0								1230	2					
0         3         1980         740         296         296         444         Narrow med. *, widen intersection 1.5'         3         1800         2         1320         6840         3720         2520         1320           393         0         0         655         262         262         0         Remove med., widen intersection 2'         5         1625         2         1080         5085         2380         1730         1080           0 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>																
393         0         0         655         262         262         0         Remove med., widen intersection 2'         5         1625         2         1080         5085         2380         1730         1080           0																
0         0																
0     0     0     0     0     0     0     0     Narrow med. *, widen intersection 1.5/3     3     1620     2     1600     6980     3760     2680     1600       600     0     0     1132     532     532     0     Narrow med. *, widen intersection 1.5/2     3     1545     2     1330     6265     3390     2360     1330       1464     0     0     2196     732     732     0     Narrow med. 8', widen intersection 2.5'     8     4760     3     1980     10440     3700     2510     1980								· ·								
600     0     0     1132     532     532     0     Narrow med. *, widen intersection 1.5/2     3     1545     2     1330     6265     3390     2360     1330       1464     0     0     2196     732     732     0     Narrow med. 8', widen intersection 2.5'     8     4760     3     1980     10440     3700     2510     1980											2					
1464 0 0 2196 732 732 0 Narrow med. 8', widen intersection 2.5' 8 4760 3 1980 10440 3700 2510 1980																
1240   0   1072 024 024 0   1 wallow liled. 4.3, wideli lilled section 171.5   5 3050   1 000   7470 3700 2340 000	1248	0	0	1872	624	624	0	Narrow med. 4.5', widen intersection 1'/1.5'	5	3050	1	660	7470	3760	2540	660

0	0	0	0	0	0	0	Narrow med. 6', widen intersection 2'	6	3600	2	1320	8640	3720	2520	1320
600	0	0	1300	700	700	0	Narrow med. 6', widen intersection 2'/2.5'	6	3480	2	1320	8440	3640	2480	1320
603	0	0	1005	402	402	0	Narrow med. 6', widen intersection 1'/2'	6	3510	1	660	7830	3660	2490	660
0	0	0	0	0	0	0	Narrow med. 6'	6	3120		0	3120	3400	1040	
0	3	1980	0	0	0	0	Narrow med. 5', widen 3'	5	1925	3	1980	6765	2860	2090	1980
428	0	0	856	428	428	0	Narrow med. 7', widen intersection 2'	7	4025	2	1320	8965	3620	2470	1320
915	3	1320	1525	610	610	0	Remove med.	5	1525		0	1525	2100	610	
600	0	0	1200	600	600	0	Narrow med. 4', widen 1.5'	4	1640	2	1140	5560	2780	1960	1140
0	0	0	0	0	0	0	Narrow med. 3', widen intersection 1'	3	1320	1	710	5210	3180	2300	710
11001		6238	18625	8720	8221	872	SQFT		59205		30925	178050	98440	63930	30925
1222			2069	969	913	97	SQYD		6578			19783	10938	7103	3436
0		0	0	0	0	0	SQFT		0		0	0	0	0	0
0			0	0	0	0	SQYD		0			0	0	0	0



# **Appendix J: Bus Operations**

## **CTA SERVICE**

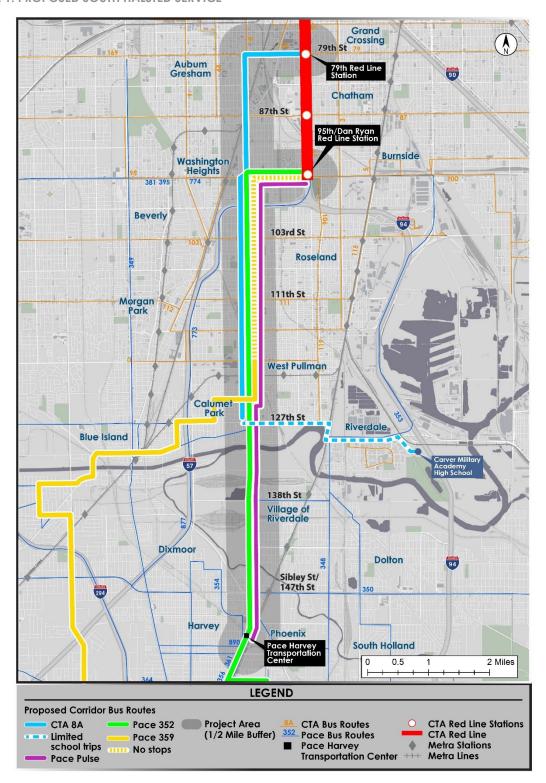
Following the completion of the project, the current plan for CTA service is that service patterns would remain unchanged. The Route 8A would still provide service between 79<sup>th</sup> Street & Perry Avenue, near the 79<sup>th</sup> Street Red Line station, and Halsted Street & 127<sup>th</sup> Street. Similarly, Route 108 would provide service to the 95<sup>th</sup> Street Red Line station. All CTA buses would still serve existing bus stops at all locations, including stops with upgraded stations. Express or limited-stop service would not be provided for either route.

However, CTA is currently exploring potential changes to the routes on South Halsted. In pursuit of improved service on the corridor, CTA Planning has developed a proposal for updates to local service on the South Halsted corridor. As both CTA and Pace provide service on South Halsted, the proposal considers existing Pace service as well as the proposed Pace Pulse limited stop service that would run along South Halsted Street from the Pace Harvey Transportation Center to the 95<sup>th</sup> Red Line station. The goal was to streamline service provision and target it most effectively between the offerings of the two agencies.

In the proposed scenario, CTA service changes would include the discontinuation of Route 108, which currently serves the 95<sup>th</sup> Red Line station via South Halsted to 127<sup>th</sup> Street in the AM peak and afternoon to early evening on weekdays only. As a replacement, additional service would be added to Route 8A, which serves the 79<sup>th</sup> Red Line station via South Halsted. Improvements would include increased span of service, specifically extending service to approximately 12:30am (currently there is no service on Halsted after 8:30pm between 79<sup>th</sup> and 95<sup>th</sup>). Changes would also include increased frequency during the weekday midday, as well as on weekends, and increased service coverage to 127<sup>th</sup> Street instead of ending some trips at 119<sup>th</sup> Street (currently, 8A trips only extend to 127<sup>th</sup> Street during midday and weekend periods). Finally, Route 8A would also include trips to Carver Military Academy that are currently operated by Route 108. Figure 1 shows the proposed South Halsted Corridor service that would be implemented as part of this proposal. CTA is also exploring the possibility of adding an express route overlay service from Waveland Avenue in Lakeview to 95<sup>th</sup> Street which would operate during weekdays. However, that potential express service is not included in the figure and was not analyzed as part of this study.



FIGURE 1: PROPOSED SOUTH HALSTED SERVICE





respectively.

Table 1 and Table 2 show the existing and proposed frequency and service span information,

TABLE 1: CTA SOUTH HALSTED CORRIDOR FREQUENCY (MINUTES)

	Weekday Peak	Weekday Off-Peak	Saturday	Sunday
Current 8A	11-17	15-25	15-25	20-30
Current 108	15-18	18-20	N/A	N/A
Combined 8A and 108	7-10	11-15	N/A	N/A
Proposed 8A	12	12	12-20	15-20

TABLE 2: CTA SOUTH HALSTED CORRIDOR SERVICE SPAN

Route	Weekday	Weekday Saturday			
Current 8A	5:30am - 8:40pm	5:30am - 8:40pm	5:30am - 8:30pm		
Current 108	5:45am - 8:55am 2:00pm - 9:00pm	N/A	N/A		
Proposed 8A	4:50am - 12:30am	5:15am - 12:30am	5:15am - 12:30am		

The proposed service changes help to address general concerns heard from customers through CTA Feedback as well as problems identified during the Bus Enhancement study. They provide the following benefits to address issues related to existing service:

- Removes the overlap with existing Pace service and future proposed Pulse rapid transit service connecting to the 95<sup>th</sup> Street Red Line station as well as overlaps with CTA routes along 95<sup>th</sup> Street
- Fills a gap in service between 79<sup>th</sup> Street and 95<sup>th</sup> Street after 8:30pm
- Extends service to 127<sup>th</sup> Street during all times
- Increases frequency on all day types, especially during off-peak and weekend periods

The improvements are estimated to include a cost increase due to increased mileage of extending trips from 119<sup>th</sup> Street to 127<sup>th</sup> Street, increased hours of operation, and increased frequency on weekends.

In assessing ridership projections from the service change, there is a net increase in ridership. Weekday ridership has a slight decrease, but the loss is less than 1% and within the margin of error for the analysis. Weekend ridership would increase by 689 and 600 new rides on Saturday



and Sunday, respectively. Weekends generally have less service, so the market is more sensitive to the additional frequency provided by these proposed changes. These conservative estimates are comparable to the ridership results achieved in similar markets when service was added, such as on Routes 95, 26 and 4. Existing ridership, projected new rides, and total projected ridership is included in Table 3.

**TABLE 3: CTA SOUTH HALSTED CORRIDOR RIDERSHIP** 

Existing Ridership													
Weekday Saturday Sunday													
8A	3,043	2,112	1,471										
108	1,283	N/A	N/A										
Total	4,326	2,112	1,471										
Projected New Rides													
	Weekday Saturday Sunday												
8A	1,260	689	600										
108	N/A	N/A N/A											
	Total Project	ed Ridership											
	Weekday	Saturday	Sunday										
8A	4,303	2,801	2,071										
108	N/A	N/A	N/A										

Based on the service changes, customers benefiting would include those that travel between 79<sup>th</sup> Street and 95<sup>th</sup> Street on Halsted after 8:30pm, customers traveling on the South Halsted corridor on weekends, and through riders traveling South of 95<sup>th</sup> Street to destinations to the North.

Conversely, an estimated maximum of 277 weekday customers would be impacted by the service change. Approximately 219 Route 108 customers who transfer to the Red Line at 95<sup>th</sup> would either need to take a Pace service (Pulse Halsted Line or Route 352) to reach the 95<sup>th</sup> Red Line station or take Route 8A to the 79<sup>th</sup> Red Line station. Approximately 47 customers who alight along 95<sup>th</sup> Street would instead need to take a Pace service or transfer from the 8A to a bus along 95<sup>th</sup> Street (Route 95 or Route 112) to reach their destination on 95<sup>th</sup> Street. Finally, approximately 11 customers transfer to Route 29 at 95<sup>th</sup> Terminal. These riders would either need to take a Pace service to the 95<sup>th</sup> Red Line station or transfer from the 8A to a bus along 95<sup>th</sup> Street to reach Route 29.



In addition, because Route 8A stops at 79<sup>th</sup> Street and Perry Avenue rather than the 79<sup>th</sup> Street Red Line Station, customers would need to walk about a tenth of a mile to access the Red Line entrance. Adding a stop for Route 8A directly in front of the Red Line station entrance would require an additional mile of deadheading, adding time and therefore cost to the service.

## **PACE SERVICE**

As described in the primary report, Pace would provide Pulse rapid service on the South Halsted Corridor as part of this project. In addition, Pace would continue to provide local service on the South Halsted Corridor with Route 352 and Route 359, as shown in Figure 1.

Currently, Route 352 provides service between the 95<sup>th</sup> Red Line Station and Chicago Heights, with some trips terminating at the Pace Harvey Transportation Center. With the implementation of Pulse service, Pace anticipates that current Route 352 service would be reduced for trips between the Pace Harvey Transportation Center and the 95<sup>th</sup> Street Red Line Station. Headways would likely be reduced to 30 minutes throughout the day in this segment. Route 352 service would likely be improved between Chicago Heights and the Pace Harvey Transportation Center. Route 352 would continue to operate 24-hour service between the Pace Harvey Transportation Center and the 95<sup>th</sup> Red Line Station. Table 4 and Table 5 show the existing and proposed frequency and service span information, respectively.

TABLE 4: PACE SOUTH HALSTED CORRIDOR FREQUENCY (MINUTES)

	Weekday Peak	Weekday Off-Peak	Saturday	Sunday
Existing Local (95th to Harvey TC)	10	15-30	15-30	15-30
Existing Local (95th to Chicago Heights)	30	30-60	30	30
Proposed Pulse Halsted (95th to Harvey TC)	10	15	15	15
Proposed Local (95th to Harvey TC)	30	30	30	30
Proposed Local (Harvey TC to Chicago Heights)	15	15-30	30	30



### TABLE 5: PACE SOUTH HALSTED CORRIDOR SERVICE SPAN

	Weekday	Saturday	Sunday
Existing Local (95th to Harvey TC)	24 hours	24 hours	24 hours
Existing Local (95th to Chicago Heights)	5:00am-1:00am	6:00am-1:00am	7:00am-12:00am
Proposed Pulse Halsted (95th to Harvey TC)	4:00am-12:00am	5:00am-12:00am	5:00am-12:00am
Proposed Local (95th to Harvey TC)	24 hours	24 hours	24 hours
Proposed Local (Harvey TC to Chicago Heights)	5:00am-1:00am	6:00am-1:00am	7:00am-12:00am

The Pulse Halsted Line would require 11 buses (9 for revenue service plus 2 spares), which would be kept at South Garage.

Table 6 shows the expected changes to Pace daily service hours and costs. The table uses \$93.15 per service hour as an estimate for the cost of operations in 2023, the expected first full year of revenue service. The implementation of this updated service plan would require approximately \$3.7 million per year in annual operating costs.

TABLE 6: CURRENT AND PROPOSED PACE ANNUAL HOURS AND COSTS

Туре	Route	Day	Hours per day	Days per year	Annualized Gross Cost (2023 Dollars)	Total Annualized Gross Cost	Difference in 2023
		Weekday	208.02	255	\$4,941,151.07		
Current	Route 352	Saturday	163.68	52	\$792,833.18	\$6,492,685.41	
		Sunday	140.43	58	\$758,701.16		
	D 1 050	Weekday	201.58	255	\$4,788,180.14		
	Route 352 (Local)	Saturday	128.53	52	\$622,573.61		
Proposed	(Loodi)	Sunday	114.37	58	\$617,906.80	\$10,230,143.79	\$3,737,458.38
Froposed		Weekday	130.77	255	\$3,106,212.50	ψ10,200,140.75	ψο, τοτ, που.ου
	Pulse Halsted	Saturday	109.75	52	\$531,607.05		
		Sunday	104.33	58	\$563,663.69		

# CORRIDOR EVALUATION, RECOMMENDATIONS, AND PROJECT STRATEGY

**TECHNICAL MEMORANDUM** 

## **NEXT STEPS**

As part of the next phase of the project, a ridership forecast for the corridor will be updated using the FTA Simplified Trips-on-Project Software (STOPS) model. In addition, CTA and Pace will continue to coordinate to determine the appropriate level of service to provide on the corridor with consideration for the South Halsted Corridor's connections to other transit service.



#### Appendix K: South Halsted Median Narrowing & Roadway Widening

	Median Narrowing							Roadway Widening								
	Alt 1 & 2 Alt 3						Alt1&2 Alt3									
Block	Existing Width (ft)	Proposed Width (ft)	Width of Median Narrowing (ft)	Existing Width (ft)	Proposed Width (ft)	Width of Median Narrowing (ft)	Width of Roadway Widening (ft) [W]	Width of Roadway Widening (ft) [E]	Type of Roadway Widening	Width of Remaining Sidewalk (ft) [W]	Width of Remaining Sidewalk (ft) [E]	Width of Roadway Widening (ft) [W]	Width of Roadway Widening (ft) [E]	Width of Remaining Sidewalk (ft) [W]	Width of Remaining Sidewalk (ft) [E]	Type of Roadway Widening
79th to 80th																
80th to 81st																
81st to 82nd																
82nd to 83rd																
83rd to 84th																
84th to 85th																
85th to Vincennes																
Vincennes to 87th	13	9	4	13	9	4										
87th to 88th	4	0	4	4	4	0										
88th to 89th																
89th to 90th																
90th to 91st																
91st to 92nd																
92nd to 93rd																
93rd to 94th																
94th to 95th	6	3	3	6	3	3										
95th to 96th	4	1	3	4	3	1										
96th to 97th																
97th to 98th St																
98th St to 98th PI																
98th PI to 99th																
99th to 100th																
100th to 101st													2		11	Sidewalk
101st to 102nd													1		11.5	Sidewalk
102nd to 103rd													1		11.5	Sidewalk
103rd to 104th								2	Parkway				2		11.5	Parkway
104th to 105th				10	8	2							1		11	Sidewalk
105th to 106th				10	8	2							2		11	Sidewalk
106th to 107th	4	0	4	10	7.5	2.5						1.5	2	13	11	Sidewalk
107th to 108th	4	0	4	10	9	1							2			Parkway
108th to 109th				10	8	2							2		10	Sidewalk
109th to 110th				10	8	2							2		11	Sidewalk
110th to 111th	4	0	4	10	8	2							3		10.5	Sidewalk
111th to 112th	4	0	4	10	4	6		1	Sidewalk		20	2.5	2.5	11	13	Sidewalk
112th to 113th				10	8	2							2.5		10.5	Sidewalk
113th to 114th	4	0	4	10	7	3						2	2	11	11	Sidewalk
114th to 115th	4	3	1	10	6.5	3.5						1.5	1.5	11	11	Sidewalk Sidewalk
115th to 116th	4	3	1	12	9							1		y		
116th to 117th					9	3							1.5			Parkway
117th to 117th PI 117th PI to 118th				11	8	2 5						1.5	1.5	9		Parkway Sidewalk/Parkway
118th to 118th PI				13	7	5						1.5	1.5	10	11.5	Sidewalk/Parkway
118th PI to 119th	3	0	3	12	7	5						2	1.0	11	11.0	Sidewalk
119th to 120th	4	0	4	13	5.5	7.5						2.5	2.5	11	12	Sidewalk
120th to RR Tracks	4	0	4	12.5	8	4.5						1.5	1	9	9.5	Sidewalk
RR Tracks to 122nd	,	U	-	12.5	6.5	7.5						2		10.5	9.0	Sidewalk/Parkway
122nd to 123rd	5	0	5	14	8	6						2.5		10.5		Sidewalk
123rd to 124th	5	0	5	14	9.5	4.5						2.5	1	11	12	Sidewalk
123rd to 124th 124th to 125th	3	U	- 3	16	10	6						- 4		- 11	12	Sidewalk
125th to 126th				15	10	5							3		10	Sidewalk/Parkway
126th to 127th	6	3	3	14	8	6							2		11	Sidewalk
127th to Vermont	5	0	5	5	0	5	3		Sidewalk	11		2	2	12	- 11	Sidewalk
Vermont to 128th PI*	14	11	3	14	10	4	3		Gludwalk	- 11		-		12		Studwalk
128th PI to 129th PI	14	- 11	,	12.5	9.5	3						1	1			Parkway
12001 (110 12301 (1	<u> </u>			12.3	9.0											raikway

										4	9	13	4	9	13
										0	4	4	4	0	4
														2	
										3	3	6	3	3	6
										1	3	4	3	1	4
Sidewalk	11		2												
Sidewalk	11.5		1												
Sidewalk	11.5		1												
Parkway	11.5		2				Parkway	2							
Sidewalk	11		1							2	8	10			
Sidewalk	11		2							2	8	10			
Sidewalk	11	13	2	1.5						2.5	7.5	10	4	0	4
Parkway			2							1	9	10	4	0	4
Sidewalk	10		2							2	8	10			
Sidewalk	11		2							2	8	10			
Sidewalk	10.5		3							2	8	10	4	0	4
Sidewalk	13	11	2.5	2.5	20		Sidewalk	1		6	4	10	4	0	4
Sidewalk	10.5	- 11	2.5	2.5	20		SideMalk	'		2	8	10	4	U	•
														-	
Sidewalk	11	11	2	2						3	7	10	4	0	4
Sidewalk	11	11	1.5	1.5						3.5	6.5	10			
Sidewalk		9		2						5	0	5	1	3	4
Parkway				1						3	9	12			
Parkway			1.5	1.5						2	9	11			
Sidewalk/Parkw		9		3						5	8	13			
Sidewalk/Parkw	11.5	10	1.5	1.5						5	7	12			
Sidewalk		11		2						5	7	12	3	0	3
Sidewalk	12	11	2.5	2.5						7.5	5.5	13	4	0	4
Sidewalk	9.5	9	1	1.5						4.5	8	12.5	4	0	4
Sidewalk/Parkw		10.5		2						7.5	6.5	14			
Sidewalk		10.5		2.5						6	8	14	5	0	5
Sidewalk	12	11	1	2						4.5	9.5	14	5	0	5
										6	10	16			
Sidewalk/Parkw	10		3							5	10	15			
Sidewalk	11		2							6	8	14	3	3	6
Sidewalk	- 11	12	2	2		11	Sidewalk		3	5	0	5	5	0	5
oruewalk		12		2		- 11	SideMalk		3	4	10	14	3	11	14
Parkway													3	- 11	19
			1	1						3	9.5	12.5			

Alt 3 Width of Median Narrowing (ft)	Count	Alt 3 Proposed Median Width (ft)	Count
1	- 1	0	2
1.5	0	0.5	0
2	7	1	0
2.5	1	1.5	0
3	3	2	0
3.5	1	2.5	0
4	- 1	3	0
4.5	2	3.5	0
5	6	4	1
5.5	0	4.5	0
6	4	5	0
6.5	0	5.5	1
7	0	6	0
7.5	2	6.5	2
8	0	7	3
		7.5	1
Counts only in	clude	8	10
sections betw		8.5	0
100th & 129	9th	9	3
		9.5	2
		10	3

Alt 3 Width of Proposed Widening (ft)	Count		Alt 3 Width of Remaining Sidewalk (ft)	Count		Widening Type
1	8	Ī	9	3	Ī	Parkway
1.5	8		9.5	- 1		Sidewalk/Parkway
2	15		10	3		Sidewalk
2.5	6		10.5	4		
3	3		11	14		
			11.5	4		
			12	3		
			12.5	0		
			13	2		